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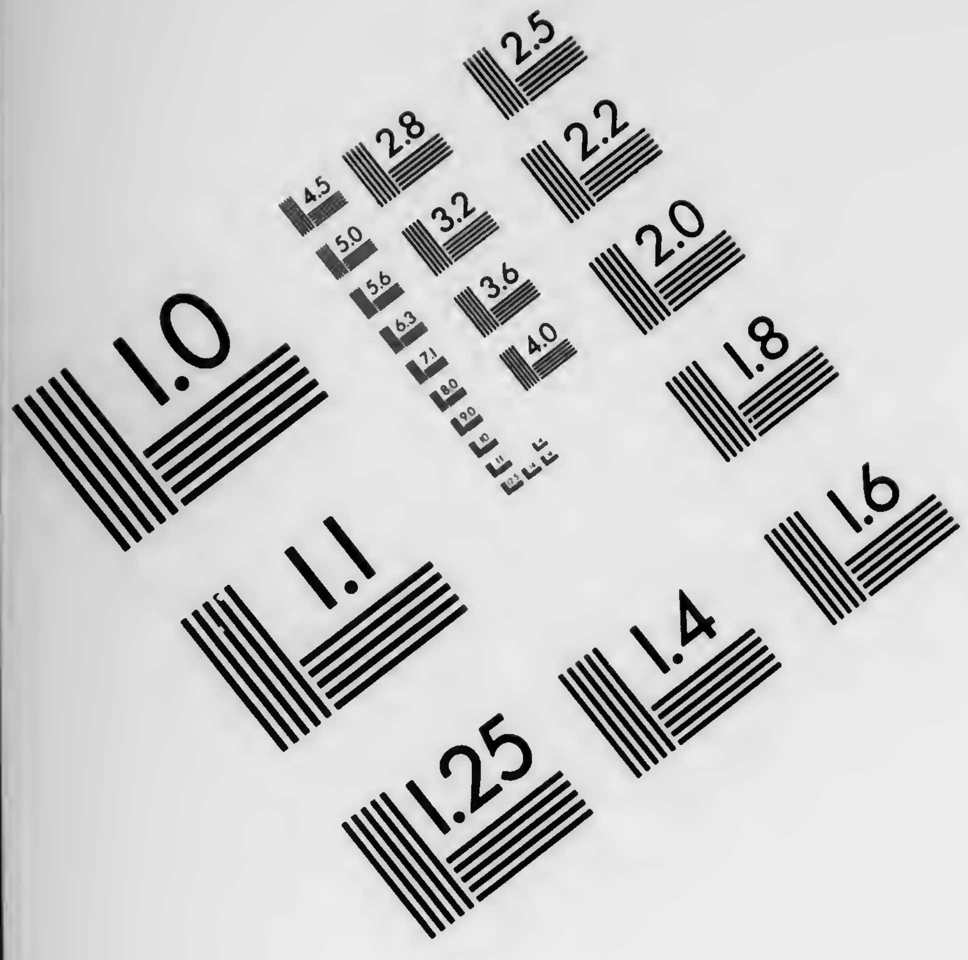
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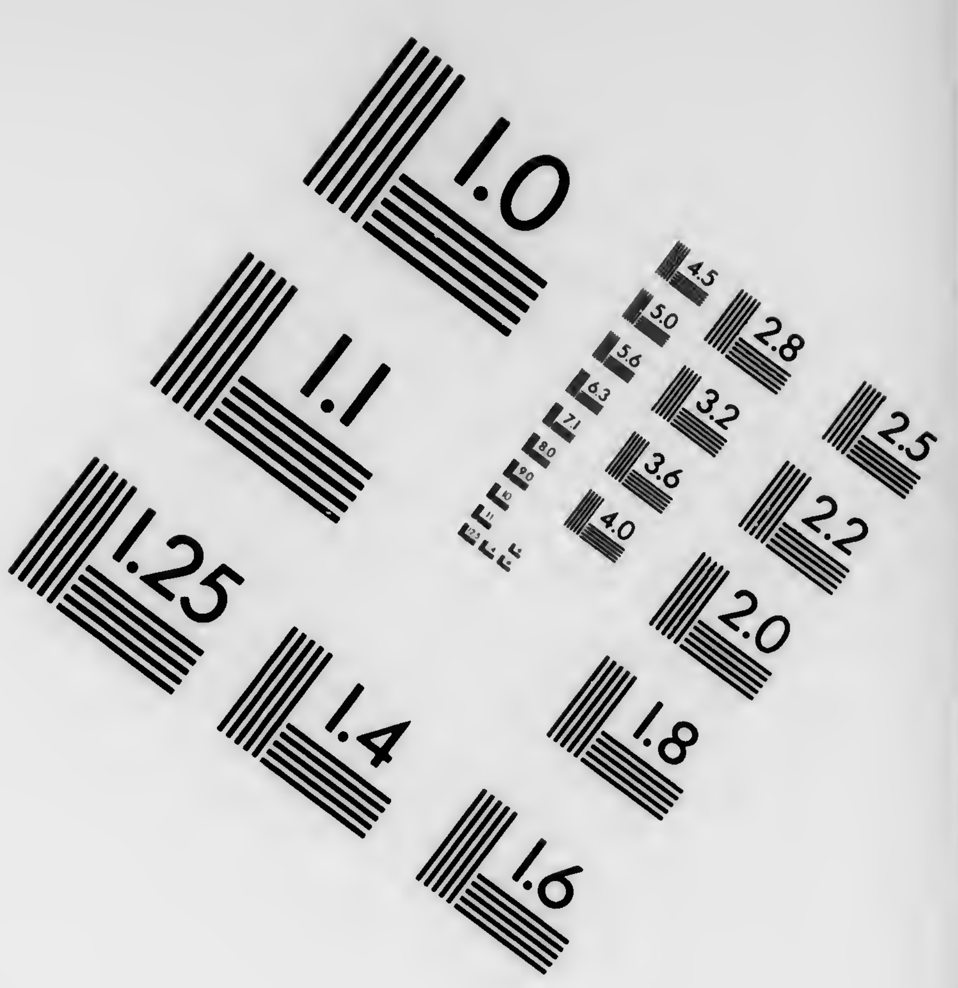
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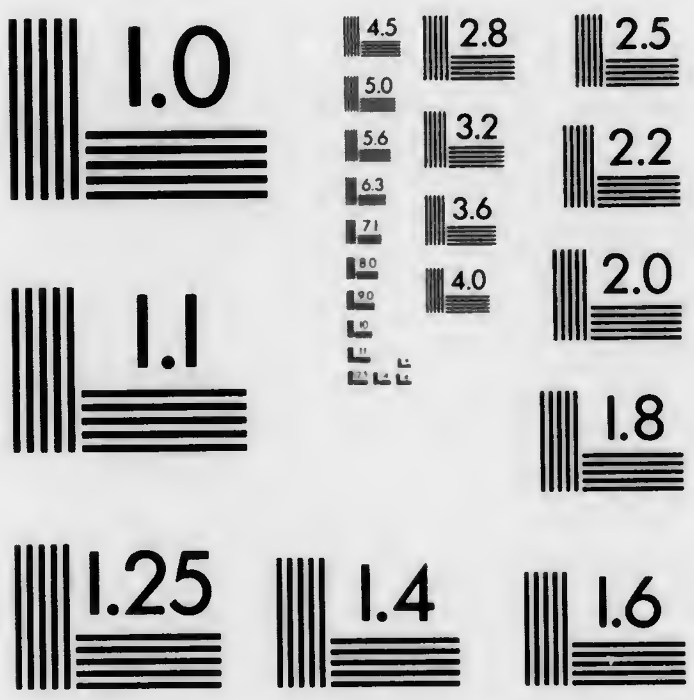
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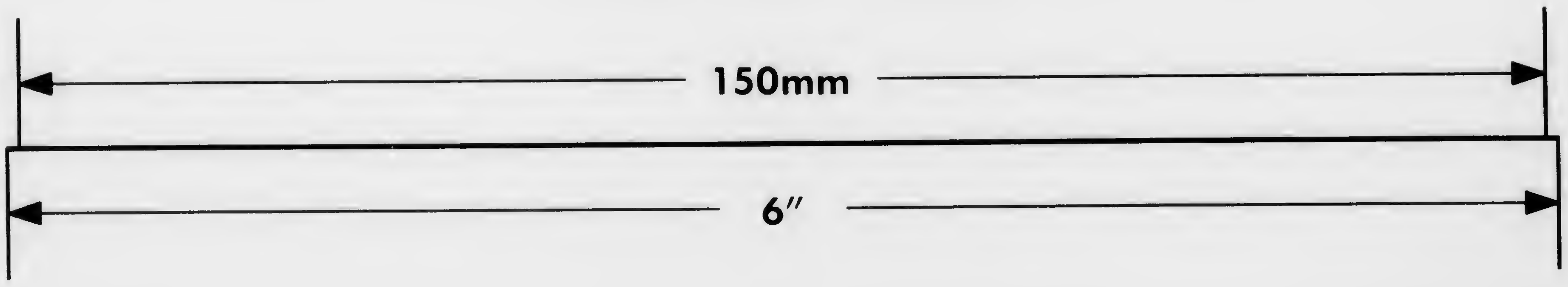

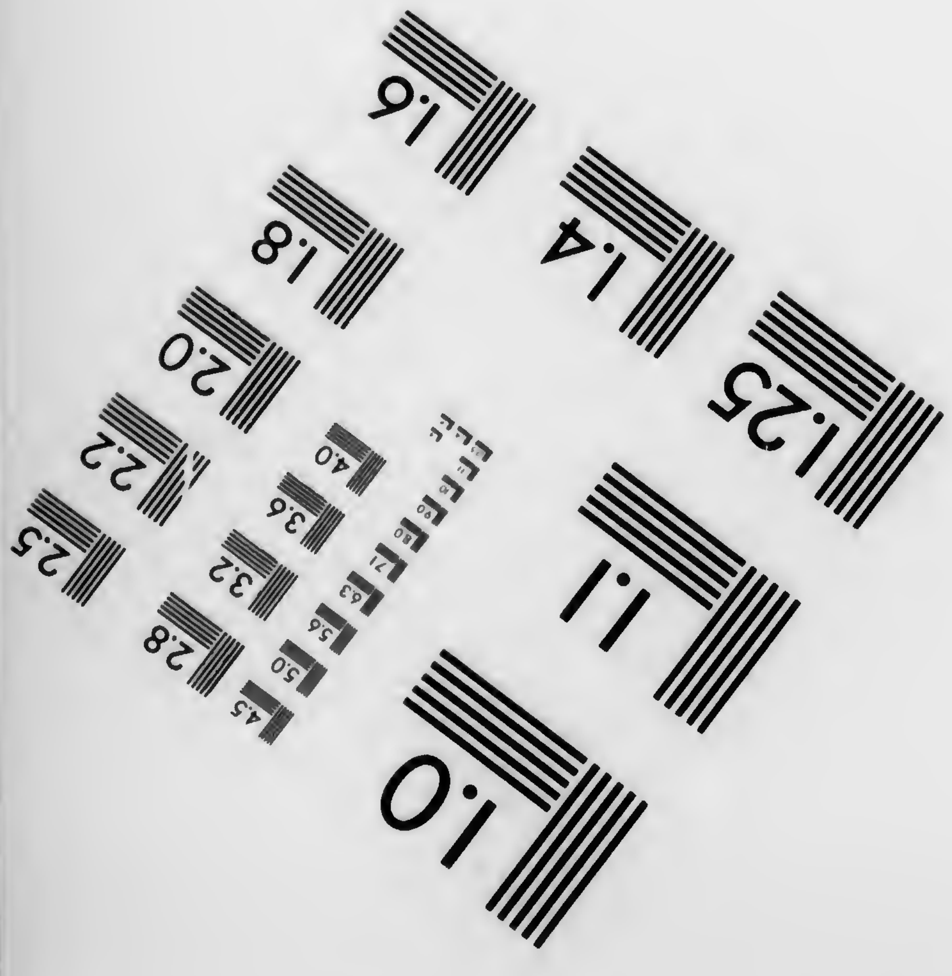
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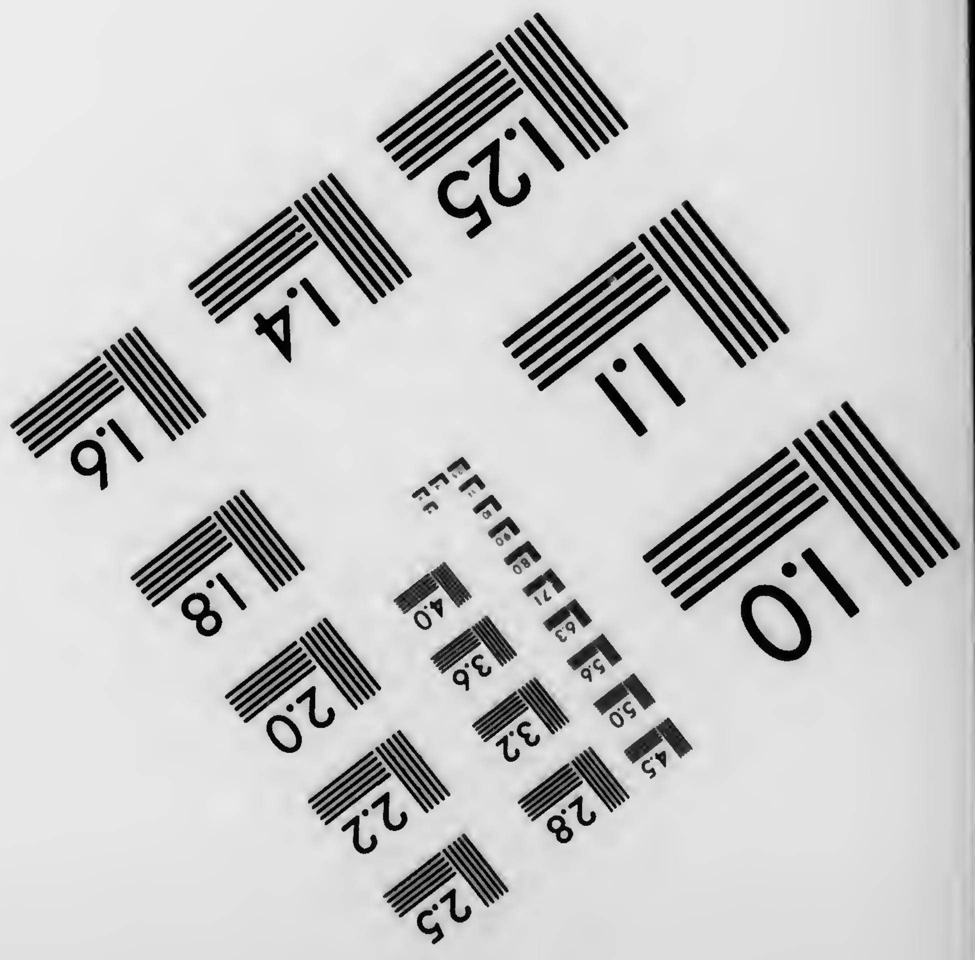
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Vol. 3, No. 25 January 15, 1941

What the Poultry Industry Offers to the Younger Generation

By E. B. PARMENTER

Condensed from New England Poultryman

THE Poultry Industry of the United States is a billion dollar industry. There are few other branches of agriculture that can show such a volume of business. Volume of business has been on the increase over a period of 20 years, probably doubling in the past decade.

Naturally, such a fast growing business offers opportunities in which to make a living. There is a good opportunity for a man with some capital to make a start and establish a good paying business. It differs very much, however, from other industries in that a man with only small capital can add to his present earning capacity by operating a small poultry plant on the side, learning the business as he goes along, and reinvesting his poultry earnings to make a larger plant, until he has a poultry business of sufficient size to give him full time work and a living therefrom.

Many poultry farmers were once engaged in some other mode of work, gaining their knowledge without intensive training. Thus, the problems of a technical nature that arise from time to time must be answered or solved by trained poultrymen, or experts, who have made

New England Poultryman Publishing Company, 4 Park St., Boston, Mass.
(New England Poultryman, September 15, 1940)

an intensive study of poultry problems.

Trained Advisers Needed

As the poultry industry grows, and the problems and difficulties increase, so does the need for trained men to prevent and to correct such problems increase.

Now the question is "Where are these trained men coming from?" The average worker in a trade or a store finds it hard to become an expert, the same as his friend who broke into the poultry raising business, first on the side, and then as a regular business, finds it difficult to be an expert in solving all his problems. It seems to me that the trained poultryman, salesman, veterinarian or extension agent must come from the future generations. The need for these experts is on the increase. Therefore opportunities for the agriculturally-minded younger generation look, to me, to be good.

It is true that the number of agriculturally-minded students is small and that not all are physically or mentally equipped for intensive training. I do believe, however, that such a training will help them to be better poultry raisers, if that is the line of endeavor that they eventually depend upon for a living. The poultry business is an intensive business in which small details in great number occur, the correct solution of which helps to make or break that enterprise.

I have been in the poultry business for 25 years and had a chance to grow up with it for a period before that. The problems we have today are similar to those of 25 years ago but are multiplied many times, and new ones of great importance are cropping up every year.

Expert Knowledge Required

Expert poultry raising knowledge is a great help toward the solving of many of these problems.

The poultry business is being run more business-like as time goes on. All this makes opportunity for success more assured. It gives the younger generation more confidence in starting such a venture, or investing their time and money in learning the specialized branches so necessary to the successful growth of that business.

There should be a demand in the future for trained men in many poultry fields. I will list a few of them in the order of importance, as I see the situation at present: Poultry farm workers with technical as well as actual poultry training; poultry farm managers; poultry feed salesmen, who are also technical advisors; incubator operators, and poultry magazine and advertisement writers and salesmen, are among the most important. There is also a great need for trained poultry pathologists and feed chemists. Besides the above great need for men better trained than most of those now being hired

in these positions, there are numerous other now unimportant side lines in the industry that will some time absorb many trained workers.

The field of poultry by-product use has never been exploited. Poultry by-products, which at present are nearly a complete loss, represent an eventual potential saving in the industry.

The poultry industry is passing up opportunities of greater source of income in the marketing of its products. This is especially true of the present outlets for poultry meat. I believe the future will see the establishment of local poultry plants that will make better use of meat by-products, the manufacture of which will greatly benefit the industry. This will not be accomplished without expert training and large financial investment, as well as intensive experimental work.

Use Educational Centers

Present day agricultural training centers, such as county agricultural schools and poultry departments at state colleges, are already operating to take care of most of the present day needs for future leaders. I do not believe the younger generation is making full use of these facilities for advanced training in this specialty field. These agricultural training centers will grow as the demand for their use increases.

Any industry as diversified and at the same time as intensive as the poultry industry must soon demand greater efficiency, which means the need for men of greater experience and training.

Opportunity is Unlimited

It is my contention that the opportunities for the younger generation in the poultry industry were never better than at the present time.

Just as the industry has advanced in size and importance, so must the future workers be better prepared to carry on efficiently and profitably.

Just as the incubator industry has made the hatchery industry possible—as the hatchery industry has made the broiler industry possible—so have these industries made these products cheaper and, in turn, increased poultry meat consumption.

The breeding of higher egg producing poultry has stimulated the poultry industry, which, in turn, has resulted in increased egg consumption. The need for more experts in all of these lines is ever on the increase. The poultry industry needs more and better breeders. There is much need for improvement in present strains and breeds.

All these demands—more poultry workers, better poultry breeders, incubator operators, salesmen, pathologists and technical experts, to my mind—spell just one thing . . . opportunity. The men and women of the coming generation will be the leaders of 25 years hence.

Early Chicks . . . Are They Profitable?

By **FRANK D. REED**
University of Maine

Reprinted from Everybodys Poultry Magazine

ONE of the most important decisions the commercial poultryman makes is his choice of dates for his chicks to arrive. This decision is important because it determines, in part, the efficiency with which his brooding and laying house facilities are operated, and, most important, the distribution of his production of eggs throughout the year.

Price of Eggs Seasonal

The price of eggs, as every poultryman realizes, is seasonal. We have six months (January to June) of egg prices so low that most flocks do little better than pay their feed costs, followed by six months of higher prices (July to December). There should be some advantage in this situation for the poultryman who can so organize his business so that his period of greatest egg production coincides with this period of highest price.

Poultry farm account figures from various states are in general agreement on the effect of a high egg production during the six month period of good egg prices on profits per bird. Figures on 72 flocks in Maine for the season 1939 are given in Table 1.

Why Raise "Early" Chicks?

One of the devices for accomplishing this objective of getting more eggs in the high price season is the hatching of some chicks from early December through February. These early-hatched pullets commence laying early in the summer and their production curve coincides roughly with the egg price curve. With the old flock depleted in number and down in production, these early pullets enable the poultryman to have plenty of eggs to sell during this season of scarcity. In conjunction with the system of management known as "Barracks" or "Laying Shelter System," whereby the old hens vacate the laying houses to make room for housing early pullets, some poultrymen carry their maximum number of birds during the summer months—but that is another story.

TABLE 1—Relationship of June to December Egg Yield to Labor Income.

Per Cent of Total Egg Production June to December	Labor Income per Bird
Under 40	$1.15
40 to 49.9	$1.76
50 to 59.9	$1.85
60 and over	$2.20

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, January, 1941)

Advantages of Early Chicks

More eggs when eggs are highest in price is the principal argument for early hatching. There are other advantages to be considered however:

1. **Better use of brooding facilities**—these early chicks can be moved to range usually by the first of April, thus enabling the operator to run another lot of chicks through the brooder houses.

2. **Less coccidiosis** — cold weather has an inhibiting effect on the development of coccidia oocysts. Poultrymen usually experience much less trouble from this disease in their early lots.

3. **Better broiler prices** — surplus cockerels from the early lots usually bring higher prices when disposed of as broilers.

4. **A longer production period**—a few birds starting to lay in July carry through until the following October—15 months.

Problems with Early Chicks

The very fact that most people wait until April or May to get their chicks is evidence that there are certain problems and disadvantages with early brooding. There are two sides to most questions and here is my list of all the possible disadvantages of early hatching:

1. Early brooding requires better housing and equipment.

2. Early brooding requires more floor space, for chicks cannot be put on range at so young an age.

3. Brooding costs are higher. Since chicks are in confinement for a longer period, feed expense is higher. More brooder fuel, more litter and more labor add to the expense.

4. Early pullets mature earlier, lay peewee eggs for a longer period.

5. Laying house mortality is sometimes greater in early hatched pullets due to the early maturity and the shorter period on range.

6. Early pullets tend to slump in production or go into a partial molt in the fall or early winter.

7. If they carry through this critical early winter period, they may slump the following May or June or lay less during the summer.

Management of Early Chicks

The above is an attempt at presenting a fair picture of the advantages and disadvantages of early hatching. Most people who have had part of their chicks hatched early are well satisfied. Early hatching requires better stock and better management. The following is a brief outline of management as followed in Maine:

1. **Avoid crowding.** Since early chicks cannot be moved to range until 10 to 12 weeks of age or older,

in planning the number of chicks to order, allow at least 1½ square feet of brooder house floor space per chick. Chicks may be started at the rate of 1 chick per ½ square foot, but should be thinned at 4 weeks to 1 chick per 1 square foot. At 8 weeks there should be 1 chick per 1½ square feet.

2. **Move pullets to range at 10 to 12 weeks.** Many Maine poultrymen get their chicks on range before the last of the spring snowstorms are over. Shelters are "bagged up" and have wire bottoms to prevent smothering. If snow is on the ground, straw is spread over the area in front of the shelter. Some chicks are put out in this section as early as March 15 and most of the early chicks are on range by the middle of April. How early the chicks are moved out depends upon when the second lot of baby chicks, which will need the brooder houses, is to arrive.

3. **House the early pullets shortly after production starts.** Instead of allowing the early pullets to lay for several months on range, they are housed when a production level of 10 or 15 per cent is reached. Room in the laying house is provided through culling the old flock or by moving some of the old birds to laying shelters or "barracks" houses.

4. **Provide cool well ventilated laying pens.** Since early pullets must be housed in hot weather, some provision for comfort must be provided. These conditions are best provided by insulating the ceiling and by opening the front and rear windows.

5. **Prevent the fall molt.** The tendency of early pullets to go into a partial molt with the approach of shorter days and colder weather may be partially overcome through the use of lights. Start lights by October or earlier, allowing a 13-hour day. Check body weights carefully. It is usually necessary to start wet mashes or pellets in October or November. Breeding is also an important factor.

6. **Avoid heavy culling in the fall and winter.** Even in cases where a severe fall molt occurs, heavy culling is inadvisable. These birds will come back and may make up for their vacation later in the season. We usually postpone heavy culling until July, at which time birds are removed as they cease laying. Culling for health is, of course, necessary all the time with any lot of birds.

7. **Management the following summer** is the same as for any group of old birds. Culling may have to be heavier. If birds are not intended for breeders the following year, lights at 3 a.m. in July or August will help to maintain summer production.

I have tried to present fairly some of the reasons why we have seen such a tremendous increase in the amount of early hatching. Choice of hatching dates, is, to some extent, an individual problem involving type of business and plant facilities. Early chicks have a definite place in the program of adjusting production to meet market price conditions. Hatching early is not a panacea and in itself will not insure profits in the poultry business. Nevertheless, the possibilities in this early season brooding are so great, as evidenced by poultry account figures from various states, that no poultryman can afford to ignore them.

Crate Fattening Makes Best Poultry

The recent analysis on finishing chickens for market, based on experiments at the Central Experimental Farm, Ottawa, emphasized the fact that crate fattening of chickens at roasting age produces the best market stock, that pen fattening is a reasonably good substitute where crate fattening may not be easily possible, and that killing birds directly off range should be avoided, if at all possible, except with capons which are usually reasonably fat on range.

It is only the exceptional bird which is sufficiently fat to make top market grades without some fattening treatment, says H. S. Gutteridge, Division of Poultry Husbandry, Dominion Experimental Farm Service. Recent tests show that very few birds at roaster age are sufficiently fat to enter the top grades without some fattening. Birds which were fattened at that stage gained three times as much during a two-week period as did a comparable group left on range. Not only was this the case, but the greater gain was made on approximately the same feed consumption (exclusive of the liquid skim milk fed in fattening), indicating that the birds on range used up a much greater proportion of their feed to maintain activity and body temperature, both of which added nothing to their ultimate market value.

While the gain was three times greater for the crate fattened birds, its value was approximately five times greater, owing to the fact that the grading of the crate fattened birds was greatly improved, bringing a higher price per pound for the weight gained. In the final analysis, the profit due to crate fattening in this experiment was approximately 24 cents per bird, after feed costs had been deducted. The cost of the fattening crates and of additional labour must be deducted from this figure to arrive at an exact assay of crate feeding.

—Canadian Poultry Review, December, 1940.

Dropping Boards or Pits?

By C. E. LEE
Beacon Milling Company

Condensed from Poultry Item

THE usual arguments given in favor of dropping pits are that pits save labor and are easier and less expensive to build, that litter remains clean much longer, that there is less trouble from broken egg yolks in the body cavity and bumblefoot, and that pits are an aid to pullets just learning to roost.

All these arguments are open to dispute. The personal opinion of the writer is that pits are being installed by many poultrymen simply because they are different from the dropping boards previously used in recent years and poultrymen believe they represent progress. They should stop to consider that the Romans used pits, and that they have been used by many other people since then. Dropping boards were probably evolved by a poultryman who wanted a more sanitary and healthful poultry house than he was able to secure with pits. This idea still deserves some consideration.

Do Pits Save Labor?

We may consider first the matter of labor. We know that a certain number of birds are going to deposit a certain number of pounds of droppings per night and that it is going to take about so much labor to remove those droppings from the poultry house, regardless of how we do it. Is it actually going to save labor to let this manure accumulate in a pit until it has more or less solidified and perhaps frozen solid, and then try to break it up and remove it in chunks? Or is it easier to scrape a light accumulation off the dropping boards two or three times a week?

One of the unsolved questions that we would like to have someone answer is what should be done with these great chunks of poultry manure that are taken out when the accumulation in pits is broken up during the winter? Of course, this is no problem where the temperature never gets down to freezing inside the poultry house but such poultry houses are hard to find, particularly in northern New York and New England.

One poultryman told us last spring that he had no trouble of this kind because he never cleaned out the pits during the winter. At that time there appeared to be about 30 inches of manure accumulated in pits in one of his laying houses which we visited. Manure was just about up to the wire over the top of the pit and it seemed likely that very shortly the birds would be walking on manure, if they had to step down or up to the roosts. This poultryman, when asked how he would clean the manure out, stated that he probably would have to wait until it thawed out in good shape along about the fourth of July. The air in the house was bad and his birds were suffering from a respiratory trouble.

The Item Publishing Company, Inc., Sellersville, Pa
(Poultry Item, December, 1940)

Sheet Metal on Drop-boards

After we got back to the Research Farm and looked at the boys scraping manure from the dropping boards into a litter carrier, we decided that this idea of saving any labor by letting manure accumulate in a pit over a long period was certainly an illusion. Even in the houses where we don't have the litter carrier but park a wagon at the front of the house and move it along from pen to pen as we clean the dropping boards, we think that it is a far easier task than to attempt to excavate one of these pits after it gets well filled. It's certainly a lot pleasanter job, too.

We use 22-gauge galvanized sheet metal on wooden frames for dropping boards, and there is a lap of the metal sheets only every 6 feet, so we have an unusually easy dropping board to clean. In freezing weather, a few handfuls of litter scattered over the dropping board after it is cleaned will prevent any manure freezing to the metal.

Cleaning one of these dropping boards two or three times per week is certainly a vastly different business from cleaning out a deep accumulation of manure in a dropping pit.

Saving in Cost of Construction

Advocates of the pit system claim some saving in cost of construction, but we have never seen any figures to demonstrate that this is so or how much the saving may be. Frankly, we are not impressed by this argument. The roosts have to be built anyway, and if a deep pit is made the lumber used may approximate the amount which would be used for dropping boards. The wire over the top of the pit is a constant factor under both types of construction, as wire should be put under the perches anyway. We do not think that the small difference between the cost of the pit construction and the dropping board system, if there is a real difference, amounts to enough, under any ordinary conditions, to be seriously considered when making the large investment necessary in constructing a good sized commercial laying house, particularly in view of the fact that the saving will depend on how large the pit is made. If it is large enough, the amount of lumber used may considerably offset any possible saving.

It must also be taken into consideration that unless there is a lining of concrete or sheet metal, or unless all parts touched by the accumulated droppings are thoroughly soaked in oil or some creosote compound, the rotting which will inevitably take place may not only offset any original saving but may go far beyond that.

Recently, the writer visited a well known poultry farm in New York State on which there is a two-story house equipped with dropping pits. This is not a new house but has been built a number of years. However, it was all in condition to give a great many more years of service except for the boards at the bottom of these pits. On entering the first story of the house, we were much surprised to see the boards in the ceiling at the back bulging downward, and manure evidently working through onto the heads of the birds on the roosts in the first story. The first floor was concrete so that had not been injured, but there was visible evidence of rotting at the back wall of the house where the manure came in contact with the boards and studs. This, of course, was an extreme case, and no doubt was due to so much work on the farm that the manager simply hadn't taken care of the necessary cleaning.

That sort of thing makes us wonder whether one of the great appeals of the pit idea isn't that it allows postponing the disagreeable cleaning job. After all, none of us likes to do this job, whether we have pits or dropping boards, and it certainly is an awfully comfortable thing to be able to put it off another few days, another week, and another month, until finally we just have to do it. Then it is likely to be a job that we long remember.

Saving in Litter

The only saving that can result in the amount of litter needed, of course, must be due to birds depositing a greater percentage of droppings in the pits than would be the case with the regular dropping board construction. Anyone who has seen both systems in use will admit right away that the birds use the roosts over the low pits more than would be the case with roosts over the higher dropping boards. If the pits and the dropping boards were the same height, resulting in roosts being the same height from the floor, we can't see why there should be any difference.

It seems evident that most of us have probably constructed dropping boards too high above the floor. However, there is another factor here. Birds can use the floor space under a dropping board to good advantage but they don't use the space covered by the dropping pits except as they sit above them. Personally, we would much prefer to have our birds busily working in the litter on the floor underneath the dropping board than to have them

sitting above a dropping pit and doing nothing, except perhaps inhaling ammonia fumes.

The very presence of the pit reduces the usuable area of the pen, and that is undoubtedly one of the reasons why you will find more birds on the perches where dropping pits are used than is the case when the usual dropping boards are provided. The birds feel more crowded and consequently they go up on the roosts, where if they had the full floor space they might be down working in the litter.

Pits prevent trouble with internal laying and bumblefoot. This, of course, is true, providing you compare low roosts over a low pit with roosts above a dropping board that is higher from the floor than the top of a pit would be. Pits are of all kinds, sizes and shapes. We have seen some over 30 inches high, and we have seen some only 8 or 10 inches high, so it is hard to make statements which apply equally to all pit construction. But our answer to this argument would be simply that we must give more thought to lowering our roosts. Undoubtedly, a large percentage of poultry houses in the past have been equipped with roosts and dropping boards that were much too high above the floor.

Pits with low roosts have served a useful purpose in calling our attention to our error. There is no reason why we shouldn't go ahead and construct dropping boards and roosts that are nearer the floor, as they should be, and still allow usable space for the birds to work in underneath the dropping boards.

Pits Help Teach Pullets to Roost

The poultryman who raises Leghorns can dismiss this argument without further consideration, because if he has any trouble with his Leghorns going to roost immediately when he houses them, something is certainly very wrong with either the stock, his management, or both.

The poultryman keeping heavy breeds should not have any real problem in getting pullets to roost where the usual dropping boards and roosts are provided if he has used roosts of the proper construction in his brooder houses and his range shelters so that the birds are accustomed to roosting before coming to the laying house. If his roosts and dropping boards are as low as they should be, the birds will go to roost on them just as rapidly as on any pit and roost construction that could be designed for practical use. We have housed 2,000 and 2,500 pullets a year every year and have never had any serious difficulty in getting the birds to roost in spite of the fact that we have always raised fully as many heavy birds as Leghorns.

Using Phosphate May Help

As flies have a short life cycle and tend to accumulate and multiply manure, the use of pits may result in serious fly infestations. Flies act as intermediate hosts for the tapeworm, and may thus be responsible for increased losses from this source.

It is, of course, possible to dust the pits with rock or acid phosphate and to make some progress in keeping down flies in this way, but that entails extra labor which has to be considered when trying to figure any saving in labor due to pits and, furthermore, it is not 100 per cent effective unless a large amount of phosphate is used. The cost of this acid phosphate must be figured, too, unless the poultryman can actually get back his investment in the manure.

Some day practical and reasonably inexpensive dehydrators and grinders may be available so that such material can be marketed at a considerable profit. But as it is now, most poultrymen lose a substantial amount of money every year because they cannot realize the actual value of the fertilizing ingredients in the poultry manure.

Clean dropping boards have taken their place beside the use of fly spray, electric fly screens, and prompt hauling away of manure from the farm as a means of preventing tapeworm infestation. In our own laboratory we find far less tapeworm infestation in birds sent for examination than was the case ten or twelve years ago. It seems perfectly obvious that improved sanitation on the average poultry farm has given us very satisfactory results in this direction. Can we be sure that the use of dropping pits, with their accumulation of manure, attraction of flies, and the breeding of flies, will not reverse this trend and land us right back where we were?

Pits and the Rat Problem

Every poultryman who has used pits in houses that were not rat-proof has found that rats soon get to use dropping pits as a home. That is particularly true in the winter. Houses should be rat-proof, but genuinely rat-proof houses are in the minority and even in a house that is supposedly rat-proof, rats do frequently get in through a door carelessly left open or, in some cases through openings made for ventilation, on shipments of feed, or in egg cases or other supplies. Once they get inside the house they soon establish themselves in the dropping pits. Eventually, you will discover that they are there and you will no doubt have a very active time eliminating them with consequent confusion, scaring of the birds, and loss of considerable egg production.

The longer you let manure accumulate in pits, the harder it is to locate rats in them and the more difficult a job it is to get the rats out or kill them. One poultryman told us not long ago that he discovered a number of rats in the dropping pits last winter and found that they had tunnelled through the manure in many places so that it was impossible for him to get at them until the frost had got out of the manure in spring and he could break down the mass. Gas would have done the job, but he didn't want to disturb his birds by taking them out of the house during the winter when they were laying at a high rate.

Interfere With Ventilation

Some will argue on either side of this statement, but it certainly is true that in the average laying house the pits do obstruct proper ventilation. In the first place, the windows at the rear cannot be opened or, if they are opened, serve no really useful purpose. In hot weather it is highly important to have these windows open. The answer to this might be to place the windows high up in the back wall, but there are plenty of disadvantages to that practice, particularly since it makes it difficult or dangerous to leave the windows open well into the fall when storms might drive in directly on the heads of birds on the roosts. Windows underneath the dropping boards can be left open with little danger.

Furthermore, in systems of ventilation which result in a rotary or rolling motion of the air along the floor and the walls, the pit breaks up any such action, and must slow it down if not destroy it entirely. It may be argued that dropping boards also interfere with such air motion, but that is not the case if they are properly built. There should be a space between the rear of the dropping board and the rear wall. In most modern poultry houses there is a considerable space, often a foot or more. In many cases the dropping boards are built on tables and can be pulled out from the wall.

This table arrangement for dropping boards also permits them to be re-arranged and poultrymen frequently find that a convenient arrangement is to put them perhaps a third of the way from the back wall toward the front of the house so as to allow space for nests on the back wall. The table-type dropping board is adaptable to any such arrangement, but even the fixed type of dropping board can be made to allow ample air space.

It may seem that we are definitely opposed to pits under all conditions. That is not the case. Pits can be so made and so used as to eliminate many of the objections. Every man has a perfect right to make up his own mind as to whether he prefers pits or dropping boards. All that we hope to do in this discussion is to bring out some points about each system which do not appear to us to have received sufficient consideration by the average poultryman who adopts or is preparing to adopt the pit type of construction on his plant.

Dermatitis in Chicks

By KERMIT SCHAAF
Kimber Poultry Breeding Farm

Reprinted from Pacific Rural Press

DERMATITIS of chicks is a nutritional disease caused by lack of a sufficient quantity of the vitamin-substance known as "filtrate factor" in the feed supplied to the baby chicks. It is thought by some that low humidity aggravates the condition. This might explain why dermatitis is somewhat more prevalent in the late spring and summer than at other times of the year.

Dermatitis usually occurs early in life, generally when the chicks are about two weeks old.

Symptoms

Usually, the first symptoms noted are drooping of the wings, lessened activity, and sleepiness. The eyelids become thickened and stick together. Unable to see, the chick stands huddled, gives voice to plaintive or distressed "yeeps" at intervals, or may wander slowly and aimlessly about in search of food, water and warmth. The chick stops growing and loses weight. Scabby crusts form at the corners of the mouth. The feathers become brittle at the base, twist about, and later break off. Death may intervene in a few days. However, the chick often lives on indefinitely if it is able to find feed and water and does not become chilled.

Treatment

If the chick's eyes are gently pulled open so that it can see, it will usually eat ravenously, but the eyelids are soon stuck together again. Separation of the eyelids may have to be repeated two or three times a day or oftener, but those chicks which take advantage of these brief intervals of sight will, if given an adequate ration, gradually recover. Some, however, may be too far gone to care for food.

Recovery may be materially hastened by individual feeding of affected chicks with one or more of the feed ingredients rich in filtrate factor which are available for poultry. Listed in the order of their reported potency, these are: Dried yeast, liver meal, cane molasses (either liquid or dried), dried whey, peanut meal, dried buttermilk (churned), and dried skim milk.

For individual treatment, some of these can be mixed with water to the consistency of thick soup and given with a medicine dropper. The amount which should be added to a ready-mixed chick mash will depend on the relative richness in filtrate factor of the supplement used and the mash with which it is to be mixed. It is probably safe to assume that a deficient chick mash is not wholly lacking in filtrate factor, and that only a part of the requirements need be supplied by the ingredient we add. See Table 1.

While it is recommended to add to the mash combinations of most of these feedstuffs up to a total of 5 to 10 per cent of the ration (five to ten pounds per sack of chick mash), if both whey or milk, and molasses should be added in the above amounts, they might have a rather laxative effect on the chicks. Therefore, use only one of those two items, or reduce the amount of each.

In the case of yeast, some low grade yeasts contain as much as 80 per cent of materials other than yeast, such as potato starch, etc. Be sure the yeast meets the 45 per cent protein specification. Since even occasional lots of such yeast have been found to be relatively low in filtrate factor, it is best to include more than one of the above ingredients to be on the safe side.

TABLE 1 — Feeds rich in filtrate factor, used in Dermatitis treatment.

Supplement	Amount that may be safely added to 100-lbs. of chick mash
Dried yeast (45% protein)	up to 2½ lbs.
Molasses	up to 3½ lbs.
Dried whey	up to 5 lbs.
Peanut meal	up to 5 lbs.
Dried buttermilk	up to 5 lbs.
Dried skim milk	2 to 5 lbs.

It is very important that no chick scratch, or only the merest traces to keep the birds scratching for some exercise, be fed during the occurrence of dermatitis. Some chicks are "grain eaters," and if much chick scratch is fed before four weeks of age, they will overeat on grain and undereat on the mash carrying the protective vitamins they need. This is why dermatitis will sometimes occur in a brood which is being given an adequately fortified chick mash. The trouble is that some of the chicks do not consume sufficient mash to prevent the disease from developing in baby chicks.

It will probably be unnecessary to supplement the diet with the above filtrate-factor-rich ingredients after the first four weeks.

Normally, the mother hen stores a quantity of filtrate factor in the egg for the chick to draw upon during its first few days of life until its feed intake, which is very small at first, is great enough to furnish it with an adequate amount of the vitamin. The amount stored in the egg can be increased by careful attention to the diet of the breeding flock, but full protection cannot be given the chick in this manner. It is vitally necessary that the chick mash be well fortified with this vitamin from the very first if one is to escape attacks of dermatitis.

Pacific Rural Press Company, Chamber of Commerce Bldg., San Francisco, Calif.
(Pacific Rural Press, October 19, 1940)

Ventilate for Comfort

By D. C. PURCELL

Condensed from Checkerboard News

WHAT is good ventilation? That's hard to say, for each house presents different problems which must be solved in their own way. In general, it may be said that a well-ventilated house provides a dry, reasonably warm, draft-free place for the hens to "work" and sleep.

When daytime finds the hens down on dry litter, singing and apparently comfortable . . . and when nighttime finds them sitting comfortably on the roosts without too much dampness or chicken odor in the house, chances are that the ventilation is good. When the hens spend much time on the roosts during the day or seem to catch cold easily, ventilation may be at fault. When the roof frosts up, or the litter gets damp too quickly, or the house seems drafty or too cold, ventilation may again be at fault.

The general principle of good wintertime ventilation is to keep the bottom half of the house tight to prevent drafts on the floor. Then permit cold air to enter in the front above the "halfway" line. This cold, fresh air will go down to the floor. There it is warmed as it is breathed out by the birds, and rises to the ceiling. This is foul, moisture-laden air, and should be given plenty of outlet space to pass off through ventilators in the ceiling.

Eliminate Foul Air

Foul air outlets may be provided by ventilator stacks in the roof or by small ventilator openings along the front of shed-type houses just below the eaves. Ventilator stacks usually are considered best, because they reach above the roof and tend to "draw off" the foul air much as a chimney draws off smoke. Good commercial ventilators can be purchased very reasonably, or wooden ventilators may be built.

Many small houses ase ventilated satisfactorily with the small openings in the front wall, or even through front windows opened from the top. The main thing is to be sure that there are openings for the cold air to come in and for the foul air to pass off, with a snug house below the "half-way" line.

We often find poultry raisers closing the hen house tightly at night "to keep the chickens warm." When the house is entered in the morning it smells damp and close. Nothing invites colds or roup faster than this

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(Checkerboard News, October, 1940)

condition. The hens will be much more comfortable and less likely to catch cold if enough windows and ventilators are left open to keep the air smelling fresh and clean inside.

If the litter becomes damp too quickly or if the ceiling has a habit of collecting frost, these are fairly certain signs that damp air from the hens is not passing off fast enough. A hundred hens normally drink about 5 gallons of water a day. Less than a half gallon goes into the eggs, and the remaining 4½ gallons pass

For foul air outlets, a 20 x 20 poultry house usually will require a ventilator shaft 14 inches x 14 inches, or an opening in the front wall of the building of corresponding size.

If your house meets these requirements and still is damp, it may be that high trees or other buildings close to the poultry house prevent the foul air outlets from working fast enough. In this case, high ventilator stacks sticking four or five feet above the roof to catch the wind shut off by the trees or build-

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may be tacked over the openings to keep out driving rains or snow and help prevent drafts. Larger houses, of course, should have larger or more openings.

When the ceiling is high, there is too much air to warm. As a general rule, ceilings should be just high enough so that you don't bump your head. The remedy in high

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If the litter becomes damp too quickly or if the ceiling has a habit of collecting frost, these are fairly certain signs that damp air from the hens is not passing off fast enough. A hundred hens normally drink about 5 gallons of water a day. Less than a half gallon goes into the eggs, and the remaining 4½ gallons pass off in droppings and in the air the hens breathe out. Saying it another way, each 100 hens toss 4½ gallons of water into the house every day, and good ventilation should carry much of it off.

Carrying Out Moisture

When conditions of dampness do exist, the first points to check are the air inlets and outlets. As a general rule, it is safe to say that every 20 x 20-foot poultry house should have at least two windows open wide enough to allow an air intake space 2 feet by 1 foot at each window. This applies even on the coldest night, unless wind is blowing directly into the windows. Even then, the house should not be closed completely. Muslin or feed sacks may be tacked over the openings to keep out driving rains or snow and help prevent drafts. Larger houses, of course, should have larger or more openings.

For foul air outlets, a 20 x 20 poultry house usually will require a ventilator shaft 14 inches x 14 inches, or an opening in the front wall of the building of corresponding size.

If your house meets these requirements and still is damp, it may be that high trees or other buildings close to the poultry house prevent the foul air outlets from working fast enough. In this case, high ventilator stacks sticking four or five feet above the roof to catch the wind shut off by the trees or buildings may solve the problem.

Other conditions which may cause too much dampness are high ceilings, crowded houses, or dampness coming through the floor. If the inside of the house is not insulated, perhaps insulation will correct the trouble.

It goes without saying that a house must be well-built and free from cracks to be reasonably warm. But if your house is snugly built and you feel that it still is not as warm as it should be, there are a number of points to check.

Preventing Cold Houses

The trouble may be caused by a high ceiling. Air is warmed inside a poultry house by the bodies of the hens and the breath they give off. When the ceiling is high, there is too much air to warm. As a general rule, ceilings should be just high enough so that you don't bump your head. The remedy in high

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houses is to put in a false ceiling of lumber or wallboard. Small openings shold be left in the center to serve as ventilators.

Another common cause of cold houses is too much open space in front. This point should be considered carefully, for the tendency is to have too little rather than too much open space. But some houses with lots of openings let in too much air, even though these openings are covered with muslin. The solution, of course, is to put glass windows in some of the openings.

If the floor seems cold and drafty, it is well, first, to see that the floor material itself is tight and free from cracks. Then look for openings in the doors and walls where wind seems to whistle in. When the wind is right, a small crack can cause quite a draft. Occasionally, windows are so situated that wind blows into them with too much force. A remedy in this case may be to make windows open in from the top.

Long houses occasionally are found to create floor drafts within themselves. It sometimes helps to put in a partition of wood or sacking every 30 feet.

Oil Bran for Turkeys

Several diseases which bring losses to turkey growers are caused by protazoa, which are small one-celled animal parasites usually infesting the intestines and borne in filth. Blackhead, coccidiosis, hexamita and trichomoniasis are the most common of these. Sanitation is the best method of prevention, but once a flock is infested with them, the important thing is to attempt to get birds to eliminate the organism and prevent re-infestation by cleaning up thoroughly after treatment.

A treatment which has given very good results, and recommended by the Division of Animal Industry of the State Department of Agriculture especially for coccidiosis is as follows:

"Mix 1½ gallons of mineral oil with each sack of bran. Add two parts of this mixture to one part of regular mash and feed several times a day. Do not feed any other mash for a few days. It is very important that a careful system of sanitation be followed."

This treatment has stopped losses in cases of coccidiosis among turkey poults, and birds four to six months old, and has apparently cleaned up several cases of hexamita in the county.

—R. T. Durbrow, Pacific Rural Press, Nov. 16, 1940.

Making the Most of Chicken

When I wish to serve the best possible dinner I always choose chicken. Then I prepare twice as many chickens as I shall need for the meal. They are stewed gently, and the thighs, legs and pieces of breast are removed from the broth before they are entirely done. These pieces are dipped in beaten egg and bread crumbs and fried in generous fat or baked in the oven to a golden brown. Either way, I have a platter of chicken which I am proud to serve. Sometimes my guests remark that they never saw fowls yield so many choice portions.

The remainder of the chicken cooks until the meat can be slipped easily from the bone. Then it can be worked into creamed dishes, salads or sandwiches. It's a fine thing to know I have this good, boned chicken and plenty of broth in my refrigerator. And, being in a safe place, it can be kept a day or two before serving, so my family does not "founder" on it. Extra broth is made by covering the stripped bones with cold water, salting lightly, and simmering about an hour.

A second good meal can have creamed chicken as its base. I make baking powder biscuits and pour the creamed chicken over them. The chicken is cut into not-too-small pieces and added generously to well-seasoned, thickened chicken broth.

My favorite recipe for chicken salad is simple. I combine equal parts of cubed chicken and crisp celery cuts in small pieces, salt to taste, and add a few drops of vinegar, mixing well. Just before serving I stir in a liberal amount of mayonnaise. Serve in lettuce cups and, if desired, garnish with stuffed olives, cut in slices.

This chicken salad also makes excellent filling for sandwiches by cutting both chicken and celery in tinier pieces. Another one that is delicious is made by combining 3 tablespoons of quick-cooking tapioca, 1 teaspoon of salt, ⅛ teaspoon of pepper and adding it gradually to 1 cup of boiling chicken stock. Over low heat or in the top of a double boiler, cook until clear, stirring constantly. Remove from the heat and add 1 cup of cooked chicken, finely minced. When cold, add ½ cup of celery (which has been cut quite small), 1 tablespoonful of vinegar, and ¼ cup of mayonnaise. Chill thoroughly.

—Lennah B. Bond, Cappers Farmer, Nov., 1940.

ONE WRITER of ancient times recorded that small eggs produce small chicks. If it was desirable to hatch as many male chicks as possible, he advised setting long eggs; if female chicks were desired, round eggs would do the trick.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, Nov. 1940.

Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

Jan. 1—Today was the coldest day so far this winter—just above zero. Fortunately, we had the foresight to drain all the water pipes last night, but it meant carrying hot water to all the stock today. Three fountain drains were frozen solid and had to be drilled out. It was a lalapaloosa of a day, if you know what I mean.

Jan. 3—The weather man says that tonight will be the coldest yet. Right now, at 4 o'clock in the afternoon, it is zero. All the fountains have been filled with boiling water, so the birds will have a hot drink just before going to roost. They always drink a lot of water just after the grain feeding. It is my contention that they drink more hot water than cold. There is no question about it, as far as the cows are concerned. Personally, I always feel better after a good hot meal on a cold day. A full stomach helps to take the edge off of the cold weather. I think it works the same with livestock.

Jan. 4—Several days ago we started a new wrinkle in milk feeding. During the past few months we have been pouring milk on the mash in the hoppers. Since this cold snap started, I could tell at a casual glance that the milk was freezing before the birds could eat it. Now, the corn is soaked in milk for 24 hours before feeding. Six buckets of corn will absorb two buckets of milk. When there is not enough skim milk from the cows, we use dried milk and water. A cut-down barrel works fine for the soaking. The corn is measured out, cod liver oil is mixed with the milk, and the mixture is poured over the corn. About eight buckets of the swollen product is the result. It is palatable.

Jan. 5 — Egg prices strengthened on yesterday's sale. Nothing sensational; just a firmer tone. There won't be any sensational price advances for a long time to come, probably late summer.

A producer mentioned this morning that the hatcheries would start soon. 'Tis true, 'tis true, but old hens that haven't laid an egg all winter will be starting soon too. And then where will we be? In other words, it is going to be a good policy not to count the egg money until it is in hand.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, January, 1941)

Jan. 9—Zowie! Eight degrees below zero, and that means it is cold in this neck of the woods. Egg day, and the eggs go, in spite of cold and high waters. Perhaps I should say cold and snow. This morning when the lights came on the heated fountains were working to a fare-ye-well. Steam from the hot water was percolating from them like nobody's business, and the stock was rather active too.

Jan. 10—A letter from John Vandervort, of Penn State College, reminds me that I am to speak before the Pennsylvania State Poultry Association a week from tomorrow. I was invited several months ago, but this letter today makes me realize that the time is drawing nigh. What shall I talk about? It is too late now to back out, but I still don't know what to tell the members of the great Pennsylvania Poultry Association.

Jan. 13—Cleaned a few boards today, as Donnie White was home from school. It is a slow process when the ice hoe has to be used to loosen manure from the boards. But when a house is cleaned, it is cleaned, and that much has been accomplished. I just don't know what we would do if we didn't have a rubber tired wheelbarrow to plow through the snow.

Jan. 16 — We have been working all day to get the work in good shape so I can leave with a clear conscience tomorrow. We are up with the work —considering the weather. I took the eggs in and then went down to the railroad station to see about train schedules. I will leave at 6:14 a.m. arriving in Harrisburg at 3:15. The "High Flyer" hits this town only as a flag stop, so this means Kid and I get up about 4:30.

Hanover, Pennsylvania, Jan. 18—I am spending tonight and tomorrow night with Editor Hartman and his family. Tomorrow we will go down to the office of the publishing company and I will meet all the folks connected with it. I have seen so much during the last two days that I have been struck well-nigh speechless. After I finished talking this morning I was surrounded by well-wishers. One lady told me that she and her husband had traveled 135 miles to hear me talk, and that she wasn't disappointed. Yea, verily, the Old Man's cup has run over. And this spring when I am all by myself out on the range brooding chicks at night, I will live over again these pleasant days.

Jan. 19—This afternoon the Editor and I went over to Guy Leader's farm at York. I was very much interested in the setup and especially in the man himself. Surely, he has the right name, for he is truly a leader.

Jan. 22 — Back home again, and while I have seen some wonderful territory, home is a wonderful place. It is not just a place to hang my hat. It is where Kid White and I live; it is where we work; it is where we raise our children; it is where all of our interests are. It is home in the truest meaning of the words "Home—Sweet Home." Yes, it is great to be back and put the same old nose on the same old grindstone.

Jan. 23—Guess I took the eggs in today more from force of habit than anything else. Frankly, it was a mighty small load. If this weather is going to keep up until spring, I might just as well send for the sheriff now and be done with it. I have never known it to be this cold in the 20 years I have lived in this neck of the woods.

Jan. 24—The two hot water tanks are being stoked to the N'th degree. One is of 30 gallon and the other of 52 gallon capacity. It really does sound ridiculous, but we have to let the hot water faucet of the tank in the west house drip all the time to keep it from freezing. Ice forms on the wire guards of the fountains and has to be removed a couple of times a day. So far, I have seen only a few frosted combs. Of course, they had to be on the birds that looked the most eggy.

Jan. 25—Lost a dandy big bird today. She evidently got into a fight in order to warm up and had her comb picked. Then she lost so much blood, she froze to death.

We had better luck with the bird she was scrapping with, for we saw her in time. This one had the hot iron treatment, which is rather drastic but quite effective. An iron bar is heated red hot and the bleeding part is seared. If this doesn't stop the bleeding, the injured part of the comb is seared off. It is a modification of the old Indian method of healing. If the sore can't be cured, then burn it out with a red hot stone and cure the burn.

Jan. 26—Ralph Treat has invited me to go to Columbus next Tuesday for Farmer's Week at the University. We will leave late Monday afternoon and spend the night at the Hotel Fort Hays. It is some hot potatoes for a fellow like me, way out here in the sticks, to spend a night in a big city.

Tuesday is Marketing day for the Ohio Farmers Week, and Prof. Dakan likes to have as large a representation from Ohio egg auctions as possible. Tuesday night a meeting is scheduled for the managers, inspectors and board members of the various auctions to discuss common problems.

Jan. 27—Once again I am trying to get the work in shape so that I will feel justified in leaving home for a couple of days. The dropping boards in the three north houses were cleaned and the residue scattered on the pasture. There is a lot of residue on the pasture, well nigh 50 tons of it. One can tell at a casual glance that chicken manure has been cast about.

It certainly will be a relief to me when there are a few heavy rains to carry the fertility through the soil. If there should happen to be a severe drought next summer, I am afraid that the 60 tons per acre which has been applied over the last three years might cause a little burning, and then wouldn't the neighbors have a joke on me? But on the other hand, if we should happen to have a wet season, won't I have the grass?

Jan. 29—Hotel Fort Hays—Columbus, Ohio. I feel like I had done about two day's work. Harold and I squared the work to the point where I felt justified in leaving home for a couple of days. This afternoon I took the eggs to the auction, one day ahead of time, got a haircut and then high-balled home to get ready for the trip. Around 5 o'clock Ralph Treat and Inspector Sidle arrived, and we all came down in Ralph's car. We had supper at Mount Vernon, which is the half-way mark, arriving in Columbus at 8:30.

Jan. 30—It has been a busy day; I have renewed old acquaintances and met several dignitaries. Dr. H. C. Pierce of New York City is an old friend of some 22 years standing. The last time I saw "Doc" was when we had supper together at the Bamboo Inn in Indianapolis in 1920. Much water has flowed under the bridge in the meantime.

Dr. Cliff Carpenter of Fort Wayne and Leon Todd of New Jersey were two dignitaries I have often read about but never met. Leon and I had quite an argument at the end of his lecture regarding the ability of a candler to determine accurately the yolk color. I rather think that I was winning the argument when Prof. Dakan threw a new angle in the controversy and then the fight was three cornered. We settled nothing—nohow.

Jan. 31—Prof. Dakan certainly is proud of his new poultry building. He gave me a personally conducted tour from basement to attic, through the offices, class rooms, laboratories, incubator and egg rooms, fattening, battery, brooding, refrigeration, and storage. It will take time to equip it properly, but I know Professor Dakan well enough to know that he will get the equipment eventually. We left Columbus at noon, ate dinner at Mount Vernon, and we were home at 3:00. So ends a busy month.

Streamline Your Poultry Equipment

By HORACE DRYDEN

Condensed from Pacific Rural Press

IN going about the state, I am impressed by the timidity and conservatism of poultrymen in respect to changes in housing design. Most new houses that are being built are substantially the same as were being put up 20 years ago, with a practically solid back wall, limited front openings, and no provision for positive floor ventilation. The main object, apparently, is to keep rain out and disease bacteria in. Little thought is given to admitting sunshine and fresh air — two poultry tonics that are cheap, but which pack a real wallop in improving the health of the flock and the condition of the poultryman's pocketbook.

Poultrymen will jump at a chance to try any new feed concoction that promises full egg buckets, but when it comes to building a poultry house they are stand-patters, and I am wondering if they don't deserve the opprobrium that the French revolutionist Danton flung at the Bourbons, "They have learned nothing and forgotten nothing."

Housing for Health

We haven't much experimental data on which to base housing decisions. We have to rely on common sense and the experience of successful poultrymen. By any formula or any system of adding two and two so that the result is four, the typical California poultry house, in my opinion, is not a good house, judged from a standpoint of efficiency and health. It may be good on the few days of the year when it rains, but that just about lets out the tight, dark, poorly ventilated and damp house. The sad thing is that more of these dungeons, which are better adapted to mushroom culture than the keeping of chickens, are being built.

Chickens are well insulated by their feathers against cold, and, unless the thermometer drops to 25 or 30 degrees above zero, temperature probably has little if any effect on production. Study the results of Eastern egg-laying contests if you don't believe this.

Why try to keep the house warm? Winds, even cold winds, have not been shown to exercise any great influence on production. It is possible under ordinary California weather conditions to secure practically if not equally as good winter production in fairly open houses as in houses that provide considerable protection for the birds from wind and cold. The important factors that do influence rate of winter production are simply amount of light and the inherited resistance of the flock to winter pause.

Pacific Rural Press Company, Chamber of Commerce Bldg., San Francisco, Calif.
(Pacific Rural Press, October 19, 1940)

Advantages of Small Flocks

Our industry can stand some streamlining in regard to size of flock as well as in type of housing. It is well established that chickens of any age will be better in small than in large flocks and that, up to a certain point, the more floor and yard space, the better the results will be.

Some of the more important reasons favoring the smaller unit and adequate house and yard room are that cleanliness and sanitation are more easily preserved; litter remains drier with the same frequency of cleaning, which aids in the prevention of bacterial growth; the lesser concentration of fowls decreases the chances of the occurrence of infectious diseases that are spread mainly through bird to bird contact, and slows up the transmission of such diseases if they do occur; there is less scaring; cannibalistic vices do not appear so readily; the smaller flock is the more natural unit and chickens generally prove more productive, and, finally, the factor of general safety is greater and less careful and precise management is required.

Economical Management

The poultryman, however, is interested in the most economic results, not necessarily the very best results, as measured in terms of rapidity of gain or growth in the meat business or rate of production in the egg business. Obviously, it is not practical to allow as much as 10 square feet of floor space for each laying hen, even if a few more eggs may be obtained than with three or four. Neither is it economical to brood chicks commercially in lots of 25 or 50, although somewhat better results might possibly be obtained than in lots of 100 or 500.

On the other hand, a serious mistake made on many farms is too great a concentration of fowls in too large a building and on too limited an acreage for the most efficient results. We have never been convinced that the long continuous poultry house that is divided into a number of pens is either economical in labor, efficient in its results, or safe from a standpoint of disease prevention.

Poultry raising would be a safer and probably more profitable business generally if each flock of hens or chicks was housed separately, with adequate space between houses to provide some isolation and to allow easy access and entrance; if cheaper land was used, and more floor and roost space allowed each bird.

We have found on our own farm that no more and probably less labor is required per hen with flocks of 150 hens housed in separate houses than with much larger flocks housed in large continuous houses. There are many advantages in the smaller unit from a labor and management standpoint. The easy accessibility of the small unit and its many conveniences is a factor of very real importance on either the small or large poultry farm. Rather than being a labor savor, the large house in many ways is a labor creator. The saving in construction expense of the large house over the small house is usually not nearly as great as is commonly believed. Again, fire insurance is not a real necessity where the units are small and separated.

Concerning land. With good land not far from the main consuming markets, connected, for the most part, to these markets with paved highways, and available at prices of $300 an acre and even less, is it economical to crowd one or two thousand birds on an acre, as is often done, and invite serious disease epidemics that may bankrupt the entire enterprise and prevent the use of equipment costing thousands of dollars? Good business, good poultry husbandry, and regard for the welfare of the industry itself in its effort to eradicate disease would indicate that seven or eight hundred hens ought to be the limit per acre. Interest and taxes on a 300 dollar acre should not exceed $50 per year. Surely this is a small price to pay for safety and efficiency.

Looking Ahead

The most efficient and profitable laying flock of the future might contain 150 hens, have 3 or more square feet of floor space per bird, and have the birds housed in inexpensive open houses.

The perfect house, perfect for every day in the year, will never be built. But the poultryman can build for average conditions and for the health of the hen.

Drafts don't cause colds or any other epizootic in chickens. Most poultry houses would be better houses if they were more drafty and more airy. And any good house should allow the sun to penetrate to every nook and corner at some time during the day.

Dropping boards, which are expensive to install, which are magnificent dirt catchers and germ harborers, and which probably make general sanitation worse rather than better and save nothing on labor, will not be found in our streamlined poultry house of the future. Neither will dropping pits, the device which beats the world as a breeding place for flies and as a producer of odor.

The best part about the new house is that it will be cheap to build and utterly simple.

Danger in Feeding Spoiled Grain

By F. N. MARCELLUS

Condensed from Canadian Poultry Review

THERE is already evidence that some poultry flock operators are having trouble where feeding this year's grain. Reference here is not to that type of new grain poisoning which occurs every year earlier in the season, but which usually has cleared up by the end of October. The trouble that is now showing up is apparently the result of feeding damaged grain. It is more apparent in those districts that have suffered from heavy rains, especially during harvest time. However, it is not entirely limited to such districts. There is some trouble occurring from grains that were not badly weathered but heated in the bins after threshing.

The first sign of trouble in the flock may be a drop in feed consumption. This is followed by a drop in production. Where the reaction is more severe, the birds may develop bowel trouble and some mortality may occur. The loss will perhaps be most marked in loss of production rather than loss of birds.

Musty or moldy feed, grain badly germinated, or badly heated, will not in any case prove very satisfactory for any class of poultry. Apart from the effect upon palatability, there is the possible toxic effect upon the bird if mold growth or heating has been serious.

Disturbances Are Costly

The feeder should bear in mind the fact that to develop and sustain high production it is necessary to have everything, i.e., feed, housing and management, of the best. The reproductive system of the bird—the organs producing eggs—is so sensitive to adverse conditions when at a level of 50 per cent production or better, that the slightest distubance to the bird's physical state, from any cause, is immediately reflected in her productive performance. For example, if, for any reason, the feed is unpalatable, the bird consumes less, and with a drop in feed consumption, there is bound to be a corresponding drop in production. If feed is partially spoiled and its consumption results in more or less serious intestinal disturbance, it is soon followed by a definite drop in egg production.

If one may compare the heavy laying hen with a delicately and finely adjusted high speed machine, one may perhaps more readily appreciate the effect of some one

Donovan Publications, 184 Adelaide St. West, Toronto, Canada
(Canadian Poultry Review, December, 1940)

throwing a monkey wrench into the gears. Either one soon loses its efficiency.

If Damaged Grain Must Be Fed

If one can possibly avoid using damaged grain, or any other feed of definitely lowered quality, it will be found an economy to do so. If, however, it becomes absolutely necessary for a farmer or flock owner to make use of damaged grain, it should be used with great care. Any reaction to its feeding will depend in its severity upon the degree of damage in the grain or other feed.

Perhaps the safest plan would be to put a limited quantity of the damaged feed in a separate container in the pen and allow the birds to help themselves. Regular feeding of a ration of a known quality should be carried on at the same time. If the birds eat the damaged feed fairly readily, one would be safe in adding it to the ration. If, however, the birds do not eat the feed from choice then it would be risky to mix it into the ration with other feeds where they would be compelled to eat it.

Another plan which may be followed is to mix possibly 25 per cent of the ration requirement of a given grain of the damaged supply into the ration and note the results of its feeding. In this case, the amount used is relatively small and if it caused any trouble the birds' reaction is not going to be severe and can soon be corrected. If, however, it is found after using such a mixture for ten days or two weeks there is no noticeable reaction, then the amount of damaged grain might be increased. This addition and checking could be continued until the full quantity is added, if no injurious effect was noted. Careful checking of the results is necessary in avoiding serious loss.

Cleaning Stained Eggs

To clean eggs that are stained, I dip a cloth in vinegar and rub it on the spot I want to clean. Then I take a damp cloth to wipe the egg, and it is clean enough to pack. The vinegar I use is good, old apple vinegar about three years old.

—Mrs. G. W. S. in American Agriculturist.

“DRIVING through the countryside, our attention was suddenly drawn to a large white sign on which was neatly and carefully lettered FRESH EGGS LAID WHILE YOU WAIT. We wanted to stop at this farm to investigate, but time did not permit, so we relegated this discovery to the "to be solved" file.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, Nov. 1940.

What They Do To Get Hatchability

Condensed from Eastern States Cooperator

Four poultrymen who do big-scale hatching were asked by the editor of Eastern States Cooperator what factors they believe contribute most to good hatchability. Their answers follow.

EASIER ways and means of getting good hatchability than the one I am going to outline do exist. I have found, however, that seeking good results by easy methods is usually the wrong way to do a thing to get best results, especially of a permanent nature.

For instance, good hatchability can be obtained by the old-fashioned method of raising chickens—that is, let them raise themselves on unlimited range, with little or no grain. Then house them in a dark, cold house and feed hard grain only until the warm spring weather allows them to pick up the necessary feed out-of-doors. This will enable them—with the help of their reserve of fat, oils and energy of naturally matured organs of reproduction—to produce eggs that will hatch out 100 per cent energetic, healthy chickens.

Modern living will not allow for this sure procedure of reproduction. The poultry breeder must get high hatchability along with heavy production, and large eggs, under artificial conditions.

This can best be accomplished by the mating of male to female whose parents for two generations or more have produced eggs, 85 per cent of which have hatched under the same average conditions.

No other one thing will give better results consistently for a period of years than the use of genetically-pure, high-hatchability birds.

The next things of greatest importance, in order of listing, are freedom from disease, use of a good breeder mash, and use of good, modern electric incubation. — E. B. Parmenter, Franklin, Mass.

For good hatchability, it is important that all the breeders in a pen are the same age. We have found that in breeding pens with mixed ages, the fertility of eggs from the older birds is always lower than when the old birds are in a separate pen. The males mate with the younger birds.

During 1939 and 1940, we set up our special mating pens to check this point carefully. We placed all hens in certain pens — mixed hens and pullets from the same families in pens, and all pullets from the same families in other pens. Our check involved 12 special mating pens. The fertility of the old hen

Eastern States Farmers' Exchange, 95 Elm St., West Springfield, Mass.
(Eastern States Cooperator, October, 1940)

eggs was 16 per cent better in the hen pens than it was in the mixed age pens. We also checked fertility in some of our regular flock mating pens. We found that one and two-year-old hens, when mixed, run as high as 11 per cent more infertile eggs than from straight two-year-old hens.

These results convinced us that it always pays to put only one-age birds in a pen.—Mark N. Witmer, Dalmatia, Pa.

We feel that no one thing has made any great improvement in our hatchability, but a combination of improvements, including feeding, housing, breeding and incubation, has gradually resulted in a very gratifying improvement in hatchability.

Perhaps one of the most noticeable improvements was from the insulation of our houses. Fertility was considerably improved after this was done. We keep the temperature of the pens between 40 and 50 degrees during the winter with but very few exceptions. We get splendid results in production and hatchability without using water heaters when the temperature is kept at this level. The insulated pens are noticeably cooler during the summer months also, and this helps keep up the production and hatchability.

Insulating the laying houses has proved to be a very good investment for us. The birds certainly are more comfortable, and working in the pens is more enjoyable for the caretaker.—Henry G. Chamberlin, West Brattleboro, Vermont.

High hatchability is obtained by having a combination of vital factors managed to a high degree of efficiency. It is the result of carrying out a sound program, rather than the extra high efficiency of any few of these major factors.

We find breeding the most fundamental of the required factors. The fundamental breeding work we leave to be carried out by specialized pedigreed breeding farms. However, we have found that by crossing certain tested strains we obtain a higher hatchability than either parent strain gives when mated within the strain. This strain-crossing is used extensively in our operations.

We consider management for health next to breeding in importance. There are several factors under management—the lack of any one of which may result in marked reduction of hatchability. Most important of all management factors is allowing sufficient space for developing birds at all times.

Serious outbreaks of coccidiosis always result in injury to intestines, thereby reducing efficiency of food assimilation throughout the life of the bird. This always results in less ability for the hen to put into the egg those extra essentials for maximum hatchability. A close daily check on color and consistency of droppings has been most helpful in ascertaining when to flush.

Excessive temperatures during any period of development, especially in the embryo and during the brooding period, seem, in our observations, to cast detrimental effects on the hatchability factor of the birds so subjected.

Feeding is a very important consideration in our high hatchability program. One must consider, however, that the results obtained through feeding depend on how efficient is the machine we have grown to put into the laying house. Proper feeding must begin early in the life of a bird. When in the laying house, weighing daily food intake is extra work, but it also pays extra dividends, so much so that no other procedure now seems sound to use. Mash and oats are fed freely, according to the chicken's desire. Corn and pellets are used to balance food intake.

The feeding of high quality green feed such as Ladino clover or lawn clippings is proving beneficial to hatchability, but whether this is an indirect result through increased appetite or because this material contains some elements not known to us is undecided. I shall not attempt to guess — perhaps some of both. There are values in sunshine and grass that are very helpful to hatchability.

Egg gathering four times daily, setting eggs within three days of gathering, storing at a relative humidity of 75 degrees and a temperature of 45 to 55 degrees are important details. Experience has taught us that keeping eggs in average storage conditions may, in some seasons of the year, result in 10 per cent lower hatchability in eggs kept up to 10 days of age.—Chester Pilch, Feeding Hills, Mass.

Wide Roosts for Heavy Fryers

Results of an experiment carried on at the poultry demonstration plant of the Los Angeles County, Calif., Livestock Department, show that wide roosts are beneficial in reducing breast blisters among heavy fryers reared in wire floored brooders or houses. The blisters are varying-sized, jelly-like swellings which develop over the keel bones of a number of birds after the eighth or ninth week. Since males are heavier and have sharper keels than females, a higher percentage is usually affected. The blisters vary in length up to 3 or 4 inches.

—California Cultivator, December 14, 1940.

POULTRY RESEARCH

New Type of Salmonella

A new serologic type of Salmonella has been isolated from cases of intermittent diseases in flocks of poults in California by P. R. Edwards, D. W. Bruner, and W. R. Hinshaw, according to the North American Veterinarian, Vol. 22, No. 1. This organism, Salmonella california, was isolated in two distinct outbreaks. In one group, the disease occurred in birds six days old, with a mortality of 26 per cent being reached within a week.

Avian Staphylococcosis

An outbreak of epiornithic staphylococcic arthritis resulting in the death of 60 out of 110 5-month-old cockerels is reported by Erwin Jungherr and W. N. Plastridge, Storrs Agricultural Experiment Station, in the Journal of the American Veterinary Medical Association, Vol. 98, No. 766.

Wounds produced in putting anti-pick devices on the birds were judged to have served as a portal of entry for the infection. Later in the year, some roosters of the same flock developed a comb dermatitis which was also shown to be caused by staphylococci.

A series of tests on strains of staphylococci obtained from this and other outbreaks made possible the identification of the infection as being called by a pathogenic strain. Such infections are reported in Europe but are unusual in this country.

Treatment of affected birds with autogenous bacterin or sulfanilamide proved ineffective.

Tin Compounds for Tapeworms

In limited tests, tetraisobutyl tin plus synthetic pelletierine hydrochloride was effective for the removal of the tapeworm Raillietina cesticillus, report J. E. Guthrie, W. C. Powick, and David Bandel of the Division of Animal Nutrition, U. S. Bureau of Animal Industry, in the North American Veterinarian, January, 1941. Although some of the birds showed slight symptoms of intoxication and did not eat well on the day following administration of the compounds, there was nothing to indicate any permanent damage to the treated birds.

Choline Prevents Perosis

The addition of choline to a deficient basal diet, containing added manganese, prevented perosis in turkeys, reports Thomas H. Jukes, University of California, in the Journal of Nutrition, Vol. 20, No. 5.

Arsenocholine was also anti-perotic, but betaine was completely ineffective. A number of vitamins and minerals were tested, but all were found ineffective. An adequate supply of the vitamin B complex was found necessary for the full anti-perotic effect of choline to be exerted, however.

Studying the anti-perotic effect of various feedstuffs, Jukes found that soybean meal was fully effective at a level of 25 per cent, and partial protection was obtained with either 17 per cent of sardine meal, 5 per cent of dried pork liver, or 65 per cent of barley.

Experiments with a simplified diet indicated that choline is essential for growth, with an addition of 0.1 per cent being sufficient for growth and 0.2 per cent giving protection against perosis.

An experiment with chicks indicated that choline is also essential in the prevention of chick perosis.

More Eggs With Morning Lights Than With Lights for 14 Hours

Birds in a control pen which received morning lights and then daylight the rest of the day produced a greater number of eggs than did those in pens in which 100 and 200-watt lights were used for 14 hours, with total darkness the rest of the day, says a report in the Iowa Farm Science Reporter for October, 1940.

Experiments are being carried on in an attempt to determine the optimum illumination necessary for maximum egg production. There was little difference between pens receiving 100 watts of illumination and those receiving 200 watts.

Male Turkeys Make Cheaper Gains Than Females in Feeding Tests

Between the twelfth and twenty-fourth weeks, male turkeys made cheaper gains than did females in tests carried on by F. N. Barrett, C. G. Card, and Ashley Berridge of the Michigan Agricultural Experiment Station. The report in Michigan Quarterly Bulletin, Vol. 23, No. 2, states that males ate an average of 4.93 pounds of feed for each pound of gain, while females ate 5.60 pounds for each pound of gain. Feed cost per pound of gain averaged 9.6 cents for the 12-week period for the males, and 10.8 cents for the females.

Effects of Dubbing on Weight

Dubbing was found to increase the body weight as well as to give testes in dubbed birds approximately twice the size of those in normal birds, according to H. W. Marlow and L. F. Payne, reporting in Poultry Science, Vol. 19, No. 6.

In studies carried on at the Kansas Agricultural Experiment Station, it was found that body weights of dubbed birds most nearly resembled those of capons, being on an average about 15 per cent heavier than normal birds. There was no significant difference in the production of sperms between birds from the two groups.

Humidity and Egg Quality

Interior egg quality, as indicated by height of the thick albumen, was not affected by relative humidity in the egg-holding room in tests conducted by F. B. Jeffrey and V. Darago.

Decline in interior quality was regulated by temperature. Eggs held for 14 days at 80 degrees Fahrenheit and a humidity of 93 per cent showed a 52.5 per cent decrease in height of thick albumen, whereas eggs held for the same time at 42 degrees Fahrenheit and a humidity of 82 per cent showed a decrease of only 11.1 per cent in height of thick albumen, says the report in N. J. Agricultural Experiment Station Bulletin 682.

High humidity reduced the rate of evaporation of the egg content and reduced the number of eggs with severely mottled shells. Degree of shell mottling was not related to interior egg quality, as judged by the common measures.

Carrots Make Good Greens

Possibly the greatest enthusiast for carrot greens in the Petaluma district is Otto F. Weber.

He culls his 16,000 Leghorns every week in the year and gives them lots of carrot greens. The carrots will clean the worms out of the flock, he says, and he has observed that they will have the same effect on horses. For a horse with rough coat and dull eye, he prescribes carrots.

There is no danger of feeding hens too many carrots, Mr. Weber thinks. He throws as many as 30 to 40 pounds of carrots to 1,000 hens and lets them do their own shredding. That may keep them out of other mischief.

—Pacific Rural Press.

◄◄ IN ORDER to prevent the spread of ailments in the flock, be sure to remove moping chickens as soon as they are seen. One poultryman of my acquaintance has a crate and wire catching hook in every pen, and as soon as he sees a bird which appears to be out of sorts, he catches it right away, instead of waiting until he can locate a hook somewhere else and find time to go back.

—Pennsylvania Farmer.

Live Grading of Turkeys Pays

Reprinted from Norbest Turkey News

A FEW years ago, when even the novices were riding high, wide and handsome in this turkey game, when the prices were higher, and the margins were wider; we did not have to watch corners so closely to make a reasonable profit from our turkey enterprise. Today all this is changed, and the man who is to survive in turkeys must be a business man. The brains behind the enterprise and the records that are kept have almost as much to do with the profit as the manner in which the birds are fed.

Again, going back five years or so, most of us would grow out a flock of birds until we thought they were about ready to kill, or it suited our convenience to kill them. Then we would butcher the entire flock in one day or two days—whatever time it took to rush them through—and get it over with. Some of the birds would be past their finest bloom, others just attaining it, and still others as yet unfinished. What did we care—there was margin enough, and we did it the way that made us the least trouble.

We Need to Live Grade

Now-a-days that is changed. Our margins are smaller. We must count pennies and cut corners to make a profit. One way of doing this, providing we have the facilities of a dressing plant, is to live grade carefully.

No matter how uniform your turkeys, they do not all mature at the same time. There are variations in every flock, else there would be no improvement. In this day and age, we cannot afford to take a choice grade on a part of the flock when two weeks more of feeding would turn most of these choice birds into prime; all of which points a clear path to live grading.

Make Three Kills

The better growers are now making about three kills of their flocks. When enough birds appear to be ready, the turkeys are run through a catching chute and the ones that are actually ready are either put in a pen by themselves or marked in some way. An easy way to mark them is to cut off about half the tail with a pair of heavy shears. Generally, it is a majority of the hens and some of the more quickly developing toms that go out this first time.

With these birds out of the flock, more feeder space is available, a majority of the flock bullies are gone, and the remaining birds put on flesh much more rapidly than

Northwestern Turkey Growers Association, Salt Lake City, Utah
(Norbest Turkey News, November, 1940)

was the case before this first cut in size of the flock.

In about two weeks, go through the flock again. Perhaps you will find a majority of the remaining birds ready to go. Get these out and the drag of the band will have a real chance to make prime, something they would not have were the other birds left with them.

Don't Hold Finished Birds

Turkeys are something like fruit. There is a time when they are ripe. Let them get past this time and they start to deteriorate. The toms get staggy or pouchy, the hens lose their bloom and their firmness of flesh. It is much better and more economical to kill just when the birds reach their maximum bloom, even if the market does not look right. You always can have the option of holding your birds on account sale in a cooler until the market suits you and it is cheaper in the long run to carry them in the cooler than in the feed lot.

One thing this season's market is disclosing. With the advent of more broad breasts on the market, the dealers are willing to take a bird with less finish, providing it has the flesh. This does not mean that a blue, pinny bird is going into the prime class or sell as rapidly on the market; rather that a broad breast bird with plenty of flesh and a reasonable amount of fat is being taken in preference to an old fashioned type bird that is rolling in fat. After all, the public is seeking edible meat, not fat.

Turkeys are sold largely on appearance. A bird with no finish or color, is not going to command a top price, regardless of the amount of flesh. But it is also unnecessary to have the bird over fitted. The slack scalding plants over the country have enabled us to better utilize the bird that still has a lot of pins.

Grade your birds before they go to the plant. It will pay big money, for on this market one loses on the choice and commercial birds.

More Eggs in Canadian Army Rations

When the army rations were first drawn up, no provision was made for eggs. A revision was made following considerable work and after the foolishness of a no-egg diet was pointed out—then four eggs a week were included. Commencing November first, six eggs a week were allowed, so the value and importance of "sunshine in sealed packages" receives its due consideration.

—Canadian Poultry Review, December, 1940.

VIEWS OF THE EDITORS

Why Chicks are Bought

Hatcherymen often wonder and ask themselves on just what do their customers base their purchase of chicks year after year?

There have been several surveys made on this, and while they vary somewhat, all point in one general direction.

Recently one large manufacturing firm with wide distribution in every part of the country made a very careful survey and tabulation.

The representatives of this firm in different sections of the country were asked to obtain the names of purchasers from the dealers handling the products of this particular firm.

These names of purchasers of chicks who bought by mail, by personal contacts, and by visit to the hatchery were then sent a questionnaire and asked to fill out, giving the reasons why they made the purchase.

The questionnaire was, in effect, asking what the customer wanted when he went to buy chicks each year.

One astonishing thing about this questionnaire was that it showed that nearly a third of the buyers of chicks that particular year were dissatisfied with their purchases.

In other words, nearly one-third of the customers of the hatchery found something to complain about to an outside firm.

Here are the tabulations as they were sent to this particular firm in percentages.

Breeding	79%
Egg Records	50%
Price	46%
Feeding	44%
Testimonial	16%
Size of Hatchery	11%

—International Baby Chick News, Dec. 1, 1940.

Why Not Federal Egg Grades?

No. 3 corn is the same wherever it's traded on the exchanges. A farmer in New York State buying a carload of No. 3 yellow corn from Illinois would be certain to receive corn meeting the grade requirements of No. 3 yellow. Wherever corn moves in interstate commerce, the transaction is in terms of official government grades.

Such orderly marketing doesn't apply to eggs today. The grade, "Extra first" in Chicago isn't the same as the highest grade on the New York Mercantile Exchange known as "specials." Even among the egg auctions, the grades aren't identical. As a result, producers are confused and consumers are even more disturbed when they buy eggs, because they don't have a grade ideal against which to measure the quality of their purchase and the purchase price.

Not so long ago, corn wasn't graded according to government grades either. Now the grades are official, and they are promulgated by the Agricultural Marketing Service, U.S.D.A. It can be done with eggs, too.

For quite a few years, there have been government wholesale grades for individual eggs, namely, U.S. Special, U.S. Extra, U.S. Standard, U.S. Trade, etc. These standards of quality for eggs were proposed by the U.S.D.A. at a national conference of the egg trade held in Chicago, January, 1925. But they have been used only by a few egg auctions and a few independent distributors in some of the larger cities. Only approximately 2 per cent of the nation's egg crop was government graded in 1938.

When consumers in the larger cities can secure quality eggs properly identified with definite grade standards, egg consumption will show another big increase in all grades. Now, in some cities, there is a tendency to put too much emphasis on the top grade, with the result that the lower grades suffer from insufficient demand.

"But," some of our friends who deal in eggs will say, "the government grades aren't right." Maybe they aren't! However, if we're agreed on the principle that eggs in interstate trade ought to be traded on government grades, surely we can adjust the grades. As a matter of fact, the Agricultural Marketing Service has been holding hearings on government egg grades during the past year, in an effort to develop U.S. buying grades for eggs. It has attempted to obtain the views of the trade and to incorporate the views in revised standards.

Every thinking person must agree that quality in eggs is difficult to measure accurately. That is so because present candling knowledge appears to be inadequate. One grader candling in Iowa might make a U.S. Special of an egg which another grader in Missouri might call a U.S. Extra, according to his interpretation of what he sees in front of the candler as he relates it to his understanding of the grade requirements.

None of these obstacles, however, is insurmountable. If producers generally feel that government grades—both buying and selling—should be established and promulgated for eggs (and what applies to eggs relates also to poultry) moving in interstate or foreign commerce, or traded in on commodity exchanges, they can have them by having proper legislation passed in Washington. The way to do it is to set a deadline when government grades would have this application, and in the meantime (through further hearings, if necessary) adjust the grades and train graders to apply them when the time arrives.

In its effort to increase consumption, the Poultry and Egg National Board will discover a great need for better quality eggs. The surest way to improve the quality is to make it possible for producers everywhere to realize a better price for eggs of better quality. There is plenty of evidence to indicate that consumers are seeking that quality and are willing to pay a higher price for it.

—O. A. Hanke, Poultry Tribune, Jan. 1941.

Food for Defense

You have, no doubt, noticed in the daily press that the Government is stressing the necessity for food as a first line defense measure to feed amply not only the growing children, but also the population, including soldiers, munition workers, and the general public.

Poultry naturally stands in the very forefront of the "food for defense" line.

Already the poultry industry is seeing the effect of the defense plans through the increased demand for eggs and poultry meat.

With poultry and eggs as a necessity for the "food for defense" line, it becomes imperative that poultry be produced in larger quantities than ever during the coming year.

Instead of efforts to keep down the production of poultry during the next year, every effort should be made to produce poultry in larger amounts than ever.

Eggs and poultry are the easiest and most cheaply produced of all the meat foods.

—International Baby Chick News, Dec. 1, 1940.

Give Eggs a Break

Do you want to be beautiful? Glamourous? Popular?

Do you want to be zippy? Full of vitamins? Iron in your blood and energy in your eyes?

Do you want to be economical, financially smart?

Then don't go away, because here comes the story of how to be the life of the party, the one sought after, the girl who is bride as well as bridesmaid, the man who has pep, and the housewife who has a fatter pocketbook.

If the story seems florid, please listen on, because it is backed by scientific evidence.

Eggs, of which the hens sing, but man doesn't, have everything, except the four color ink and art work which they deserve.

This most widespread of U. S. industries is indeed wide, but not well spread.

There is no advertising pot with which to paint the girl who forgot to put the glint in her hair with an egg shampoo and lost her man; no dramatic sketch of the man who sagged to work without pep of breakfast eggs and lost out to Joe Doakes who was full of eggs and competition; no pictures of housewives suffering from anemic pocketbooks, and children lagging in their studies because they need the easy digestibility and protective food energy of eggs.

If eggs could be put in ornate packages and sold as beautifiers and pellets of pep—

But hold! Come to think of it, eggs are already in beautiful packages, put there by Nature.

Man has not been able to devise a more ornate, more delicately tinted, more lovely textured package than an egg shell, and inside it is color, health, charm if we but appreciate it and make full use of it.

These things are all authenticated by fact, but unfortunately not by fancy.

Eggs are a cheap meat, an easily digested meat—no bone, gristle or waste.

Eggs are very high in food iron, ranking close to liver and spinach.

Eggs are a good source of vitamin A, pretty good in vitamin B-1 and D.

Eggs are excellent in calcium. They help build bones, and sound teeth.

So we repeat:

Don't be a wallflower in life. Give yourself and eggs a break.

—Pacific Rural Press.

Adding Income

In spite of all that is said and done to the contrary, perhaps the greatest loss in the Poultry Industry today comes from the loss of grade in eggs between the nest and the place where prices are set.

It is a common thing to see a spread of 3 cents a dozen between top, medium, and low grades. In the East, this would be a small spread even in spring. But suppose that the average spread or loss in grade is only 3 cents a dozen throughout the year in the U. S. A. There are over three billion dozen eggs produced in this country. That would mean an additional 95½ million dollars added to the income of American poultrymen. Actually, this spread between high and medium quality eggs is much more than 3 cents for at least half of the year.

For example, on November 7 at the Doylestown, Pa. Auction, the spread between Fancy Large and Producer Medium eggs were 14½ cents. If you take the average prices in these grades, and not the top and low, the spread is still 11¼ cents. On November 11, there was a spread between Medium and Large of the Fancy grade of 15 cents. In other words, the best Fancy Large eggs brought 46 cents and the low lot of Mediums 31 cents. On December 16 we find little change in this situation, even thought prices were lower. Taking another comparison, that between Fancy Large and Extra Medium, the extreme range was 39½ to 26 or a spread of 13½ cents.

On the Pennsylvania Auctions, grades are Fancy, Extra, Standard, Producers, Pullets and Pee Wees.

Suppose, for quick figuring, a producer sells only 100 cases of eggs a year and suppose that the average spread between Fancy Large and the third or fourth grade on the auction is 10 cents. This would mean a difference of $300 per year—a sizable figure in any poultry business.

Then why is it, with all the knowledge we have of producing and holding quality in eggs, that we still let money values trickle down the gutter into the sewer, never to be recovered? The first place to stop that leak is to buy chicks from a breeder who has given some time and thought to breeding for quality factors, including shell texture, shape and interior quality.

—Poultry Item, January, 1941.

Breeding Caged Birds

Artificial insemination has solved the problem of breeding birds confined to individual laying cages. Previous to the adoption of artificial breeding, stud mating was employed with not very satisfactory results. When stud mating was used, certain females either refused to mate or were unable to do so because of lack of balance resulting from long confinement in small cage units.

At the New Jersey Experiment Station only birds which have spent at least one full year in cages are used as breeders. So long as the birds are fed an adequate ration, good hatchability has resulted. If artificial insemination is employed on the females once a week, or, preferably, twice a week, good fertility will result. Since the problem of obtaining good fertility has been the main drawback to breeding cage birds, it now becomes apparent that the adoption of artificial insemination provides a practicable method of utilizing cage birds as breeders.

—F. P. Jeffrey, N. J. News Release, January 14, 1941.

☞ MORE than 3,000,000 chickens have been individually inspected by the Pennsylvania Department of Agriculture since the Standardization Program was inaugurated in 1924. There has been a steady increase each year from the three thousand birds the first year, to nearly 360,000 in 1939. The totals to date have been selected on more than 1,000 different farms in 75 per cent of the 67 counties in the state.

—Pennsylvania Dept. of Agriculture News Release, September 14, 1940.

Lowering Turkey Feeding Costs

By F. N. BARRETT
Michigan State College

Condensed from Turkey World

MOST turkey feeders are naturally interested in using as high a percentage as possible of home-grown grains, since the price of grain is usually not over half that of mash. Grain is relished by the birds up to a certain point, but they must have some source of additional protein, as well as certain vitamins and minerals to make normal growth. The mash has been found to be a convenient carrier of these supplements.

Our present series of trials to determine the extent to which grain could be used to decrease turkey feed costs was started in 1935. At that time, we were using a mash with a 23 per cent protein content which was better than any mash that we had used previously. With this mash, the birds would consume approximately 25 per cent of grain and 75 per cent of mash as an average of the entire period. Later, the protein supplements were increased in this mash until it reached a 27 per cent level. This gave better early growth and from 1 to 1½ lbs. better weight at the finish. The grain intake moved up to 30 per cent.

This has remained our check mash, and all other mashes are compared with it as to perfectness of development, cost, and other characteristics. Later attempts at reducing costs with mashes of lower protein content did not work out so well as to desirable growth characteristics, and the grain intake was generally low, so there was not much saving, if any at all.

High Protein vs. Low Protein Mash

From some of our growers came a question regarding the possibility of starting poults on an excellent high protein turkey starting mash, and then switching at either the eighth or twelfth week of age to a very good 18 per cent protein growing mash that gave splendid growth results with chickens. This lower protein mash could be purchased at $10 less per ton than the higher protein ration. We tried a switch in mashes at both of the above ages as compared with continuing throughout on the higher protein mash.

The results were that both of the pens on the low protein growing mash ate so much of the mash and so little grain that final costs were no cheaper than with the pens which were continued on the more expensive but higher protein mash. The pens on the lower protein grower consumed only 19 per cent of grain as compared to 31 per cent of grain for the latter, and they were behind in weight and finish at 24 weeks of age.

Grain Choice Tests

Probably the most encouraging results came in our 1938 trials when a free choice feeding of several grains was undertaken with both a 27 per cent protein mash and a 31 per cent concentrate mash. Corn, wheat, oats and barley were hopper-fed in a free-choice manner to three pens of 25 birds each. Duplicate trials were made with the concentrate mash, and one trial was run with our standard 27 per cent mash with these same four grains. As a check on the results, one pen was fed the 27 per cent mash and received only one grain, which was corn. All of the 100 birds used were fed in equal manner until eight weeks of age at which time two of the pens were switched to the concentrate mash, and the grain feeding was started with all the pens. The birds in the pens receiving a free-choice of grains ate grains very eagerly.

The final results were that the birds on the two concentrate mashes consumed an average of 51.2 per cent of their total feed in grain, which was the heaviest grain consumption we had obtained to date. It was expected that the high protein concentrate would bring about a large grain intake, but it was surprising to note that the standard check mash of 27 per cent protein followed the same general pattern with reference to the proportion of grain and mash consumed as well as the choice of grains. The birds on this latter mash consumed 49.6 per cent of grain, by choice, as compared with 30 per cent grain for the same mash with only corn for grain.

At prevailing prices, the two concentrate mashes had a feed cost per pound of gain of 6.8 and 7 cents, respectively, as compared with 6.7 cents for the birds on the standard mash, with free choice of grains, and 8 cents for the same ration with corn as the only grain provided.

Oats Are Favorite Grain

It is of interest to note that the birds consumed more pounds of oats than any other single grain and were consistent in this respect in all three pens. Oats were eaten eagerly from the start of the grain feeding to the finish and were the preferred grain during the final weeks in total pounds consumed. Wheat rather than corn gained in position at the finish. Corn was eaten rather indifferently by the two pens on the concentrate mash. Although the quality of the barley was good, the birds ate sparingly of it. There was no notice-

From the article, "What Do We Know About Grain for Turkeys?"
(Turkey World, August, 1940)

able difference in the final quality of the birds, and practically all were of top grade.

These same trials were repeated in 1939 with practically the same results. Feed prices were higher and this raised the feeding cost slightly. The feed cost per pound of grain was 7.4 and 7.6 cents per pound with the concentrate mash as compared with 8.2 cents for the standard mash with free choice of grains and 8.9 cents for the same mash with corn as the only grain. The quality of all birds was excellent.

What is the answer to this increase in grain, especially as may be noted with the 27 per cent protein mash? Is it the greater grain interest because of the variety, or is it due to the unusual liking for oats? Why are turkeys so consistent in their enthusiasm for oats? Is it a desire for more bulky foods, or do oats contain some nutrient that is wanted in larger amounts than is otherwise provided? Is it necessary to feed as many as four grains to obtain similar results? Probably not. During the present season, we are continuing these trials with corn and oats as the grain, and we expect to see a reduction in cost over a similar diet where corn alone is used. We are still searching for the answers.

Infectious Bronchitis

Reprinted from Featheredfax

CONFUSION still exists in the terminology of respiratory diseases. This is particularly true with infectious bronchitis, as many persons are still calling it coryza. Coryza is a bacterial disease whereas bronchitis is caused by a virus. The viruses of bronchitis and infectious laryngotracheitis are separate and distinct. Our records suggest that coryza is rare, and that laryngotracheitis occurs occasionally, whereas the cases of bronchitis outnumber those of laryngotracheitis about five to one.

Bronchitis of chicks and of adults is apparently caused by the same virus. Mortality in chicks affected under one week of age is usually high. Gasping and sneezing are important symptoms. In examining chicks, yellowish exudate is found in the bronchi, air sacs, and heart sac. In contrast, there is usually yellowish exudate in the larynx (opening to the windpipe) in laryngotracheitis in chicks.

Typical cases of bronchitis in growing stock and adults cause negligible mortality. Loud rattling and gurgling noises are produced in the trachea (windpipe). There is considerable coughing, and some birds show a nasal discharge. Egg production and appetite are severely affected. The latter usually returns in a few days, but return to good egg production may be delayed four to eight weeks. Subsequent to an acute outbreak, the shell texture, shape, and hatchability of the eggs are frequently adversely affected.

Postmortem examination reveals a great excess of clear or slightly cloudy mucus in the trachea. In laryngotracheitis, the tracheal exudate includes also blood and yellowish material and the mortality may be high. The symptoms, character of the tracheal exudate and the rate of mortality usually serve to differentiate bronchitis from laryngotracheitis. Difficult cases require animal or egg inoculation to arrive at definite diagnosis. An early differentiation is important because in outbreaks of laryngotracheitis it is frequently possible to vaccinate non-affected pens and stop the spread of the disease.

The present suggestions for treatment are as follows: 1. The birds should be kept warm and comfortable. 2. Every effort should be made to stimulate feed consumption, particularly through the use of wet mashes and milk products. 3. Vitamin A should be supplied through feeding oils and greenstuffs if any possibility of deficiency exists. Dusting powders and sprays are of questionable value.

Bronchitis offers a special problem in broiler plants. Eradication and prevention of bronchitis in laying flocks is difficult in some communities. The same plan that is used for laryngotracheitis is recommended and has proved successful in a few cases. In breeder-hatcher units, precautions begin in the incubator room when the chicks are hatched. The basic problem is the separation of the chicks and adults, but caretakers must exercise caution so that infection is not carried to the chicks. Plans should be made to dispose of or isolate the survivors of an outbreak and clean and disinfect the houses before the non-infected population is housed. Satisfactory vaccines for the prevention of bronchitis are not available. Birds immune to laryngotracheitis are not immune to bronchitis.

Massachusetts State College, Amherst, Mass.
(Featheredfax, December, 1940)

HAVE YOU ever heard the expression, "I have eggs on the spit?" It means, I am very busy now. It comes from the time when eggs were roasted on a spit. They were made like our deviled eggs, then put on a spit and roasted. Needless to say, they required both dispatch and constant attention.
—U. S. Egg and Poultry Magazine, October, 1940.

1940 Poultry News in Review

Jan. 1—New Federal Food and Drug Act becomes effective. Requires egg cases to be labeled as to their contents with the name of the original packer or the name of the distributor, and the address. Applies only to interstate shipments.

Feb. 6—Secretary of Agriculture Henry A. Wallace announces that poultry products will be included in the work of the Western Laboratory (California) of the new Regional Laboratories for Research on Utilization of Farm Products being established to discover and develop new uses and new and wider markets for farm commodities.

April 27—Governor Herbert Lehman of New York State, signs the Coudert bill, permitting the City of New York to establish its proposed central live poultry terminal.

May 7—New York Mercantile Exchange votes to close the Exchange permanently on Saturdays, due to the enforcement of a five-day working week on the part of labor unions serving the trade.

June 24—Dr. W. R. Graham, retiring head of the poultry department of Ontario Agricultural College, is honored at testimonial dinner given for him by the Poultry Science Association at Guelph, Ontario.

June 28 — Dr. D. C. Warren, Kansas State College, receives 1940 Borden award of $1,000 and gold medal for "distinctive contributions to poultry science advancement."

June 29—Cornell University's 31-year old poultry building is named Rice Hall in honor of Professor-Emeritus James E. Rice in dedication exercises at Ithaca, N. Y.

June 29 — The government announces that its egg buying program has been extended from July 1 to December 31, 1940.

July 10 — Berley Winton is appointed director of the Regional Poultry Research Laboratory, East Lansing, Mich., succeeding J. Holmes Martin who resigned to head Purdue University's poultry department.

July 22—Poultry and Egg National Board formed at St. Louis, Mo., as an outgrowth of the planning committee set up at the Seventh World's Poultry Congress. Herman Demme, Sewell, N. J., is named president of the organization.

July 24—International Baby Chick Association, meeting at St. Louis, endorses government's food stamp plan as effective means of helping to dispose of surplus eggs, recommends that all states recognize both the plate and tube methods of pullorum testing, and opposes any state regulations which interfere with free flow of trade between states.

Aug. 14—Homer I. Huntington is named manager of the Poultry and Egg National Board.

Aug. 15 — Salable chicks produced by hatcheries in the first seven months of 1940 show a decrease of 11 per cent in comparison with the same months of 1939, the U. S. Department of Agriculture reports.

Sept. 3 — Surplus Marketing Administration of U. S. Dept. of Agriculture announces discontinuance of its surplus egg buying program, started in December 1939, until further notice. In that period, purchases totaled more than 2,300,000 cases at a cost of about $12,500,000.

Sept. 21—J. A. Hanson's pen of White Leghorns establish new world's pen record by laying 4,041 eggs and scoring 4,283.25 points in 51 weeks at the Storrs Egg Laying Test.

Oct. 1 — California Official Egg Laying Contest begins operation at Modesto, Calif. Pens consist of 26 birds and awards are based on net income rather than on total eggs or points.

Oct. 4—Northeastern Federation of Egg and Poultry Cooperative merges with Northeastern Poultry Producers Council.

Nov. 9—Surplus Marketing Administration of U. S. Department of Agriculture announces plan to purchase surplus turkeys for distribution through school lunches for undernourished children.

Nov. 10-12—Severe storm sweeps Rocky Mountain and West Central states, causing heavy losses of turkeys through freezing.

Nov. 15—Surplus Marketing Administration announces it is deferring purchases of surplus turkeys as a result of losses in the storm of Nov. 10 to 12.

Turkey-Chicken Price Spread Narrows

Reprinted from U. S. D. A. Poultry and Egg Production Report

PRODUCTION of turkeys has almost doubled in the past 10 years. Crop Reporting Board figures indicate. And one effect of this sharp expansion of the annual turkey crop has been to bring turkey prices closer to chicken prices. This is shown by comparing prices of turkeys and chickens for the 30-year period, 1910 to 1939.

The most extreme spread between turkey and chicken prices is for the middle 10-year period, 1920-29, when high consumer buying power was associated with the period of greatest scarcity of turkeys. The spread averaged about 8.7 cents for this middle 10-year period, compared with 3.7 cents for the first 10-year period, 1910-19, and 2.8 cents for the last 10 years, 1930-39. For the last 5 years of the 30-year series, the average spread was only 2.5 cents.

More Turkeys Grown

The rapid increase in turkey production during the past 10 years is no doubt the major factor in the declining price spread between these two types of poultry. A contributing factor has been the material decrease in chicken production following 1930, which tended to raise the relative price of chickens. The tendency toward recovery of chicken production since 1937 — the low point — with resulting declines in chicken prices, has again widened the spread between turkey and chicken prices, even in the face of a further increase in turkey production.

Turkey prices themselves have shown rather sharp fluctuations

Agricultural Marketing Service, Washington, D. C.
(Poultry and Egg Production, December 16, 1940)

since 1910. Following a period of relatively low prices at the beginning of the series, high price levels for turkeys prevailed from the period of this country's entrance into the World War to the beginning of the great depression in 1930. The low level of prices was reached at the bottom of the depression in 1932 and 1933. Prices subsequently recovered to an average price of 16.9 cents for the 5 years, 1935-39. During most of the 1939 and 1940 big-crop seasons, prices stood at the levels of between 16 and 13 cents, or but little higher than those for the years 1910-14.

Although the price of turkeys held up rather well during the marketing of the main crop in 1939, the decline in the price in the late season indicated that the supply was in greater volume in relation to consumer demand than was realized during the earlier marketing season. The improvement in purchasing power during the past 2 years was a factor in preventing further decreases than actually occurred in the price level.

Proportion Has Increased

The total production of turkeys in 1929 was approximately 218 million pounds—equal to about 8.4 per cent of chicken production (in pounds) that year. But by 1939 approximately 482 million pounds of turkeys were produced, equal to about 17.9 per cent of the pounds of chickens produced. The great increase in turkey production in recent years is attributed largely to the better control of black-head, a disease that causes high mortality among turkey poults.

The losses of poults from black-head, a scourge that was first recognized in New England about 1904, became so great during the following 20 years as to all but stop the production of turkeys over much of the humid territory east of the Mississippi River. The decrease in production in that area was only partly compensated by a rapid increase during that time in production in the more arid lands west of the River. A low point of production was apparently touched in the late twenties, but thereafter production recovered rapidly.

The rapid expansion of the turkey crop during the past 10 years has also placed turkeys among the staple all-the-year-round foods. Frozen, canned, and smoked turkeys are now available at all seasons.

Poultry and Turkey Prices Received by Farmers—1910-39
(3-month average—October, November and December)

Year	Turkeys	Chickens	Spread	Year	Turkeys	Chickens	Spread
1910	14.5	11.0	3.5	1925	27.8	19.6	8.2
1911	13.4	10.1	3.3	1926	29.7	20.2	9.5
1912	14.3	11.1	3.2	1927	29.8	19.4	10.4
1913	15.1	11.9	3.2	1928	29.6	21.6	8.0
1914	14.2	11.3	2.9	1929	25.9	20.3	5.6
1915	14.7	11.5	3.2	1930	20.3	16.3	4.0
1916	18.4	14.0	4.4	1931	18.5	14.2	4.3
1917	21.3	17.7	3.6	1932	12.3	10.0	2.3
1918	25.5	22.1	3.4	1933	11.4	8.9	2.5
1919	28.7	22.4	6.3	1934	14.4	11.7	2.7
1920	31.6	22.7	8.9	1935	19.0	15.9	3.1
1921	28.8	18.6	10.2	1936	15.1	13.3	1.8
1922	29.0	17.5	11.5	1937	17.5	17.0	.5
1923	26.3	17.8	8.5	1938	17.3	13.6	3.7
1924	24.4	18.6	5.8	1939	15.6	12.3	3.3

Feathers in Demand

A year ago, when the war started,

There's a mad scramble for them now. The price has tripled and poultry dressers are saving every feather!

At present, feathers are practically the only by-product of poultry for which there is any use. But there

with an equally foolish idea is going to find a way to use the by-products of poultry and eggs.

—Frank Priebe's Weekly Letter to Poultrymen, November 14, 1940, Copyrighted.

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National Poultry Digest
HANOVER,
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1917	21.3	17.7	3.6	1932	12.3	10.0	2.3
1918	25.5	22.1	3.4	1933	11.4	8.9	2.5
1919	28.7	22.4	6.3	1934	14.4	11.7	2.7
1920	31.6	22.7	8.9	1935	19.0	15.9	3.1
1921	28.8	18.6	10.2	1936	15.1	13.3	1.8
1922	29.0	17.5	11.5	1937	17.5	17.0	.5
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Feathers in Demand

A year ago, when the war started, the price of duck and goose feathers went up because the supply from Czechoslovakia had been cut off.

But the price of chicken feathers went down because they had generally been shipped abroad to be made into inexpensive feather pillows and feather beds.

With that market closed, poultry dressers found they no longer got enough to pay them for the trouble of washing and drying the feathers. So they quit saving them.

Then our country began to rearm. They started to order supplies for the army and navy: Planes, tanks, guns,—and pillows. They want about 5 million pillows. That's going to take a lot of feathers, and pillow manufactures don't have them. There's a mad scramble for them now. The price has tripled and poultry dressers are saving every feather!

At present, feathers are practically the only by-product of poultry for which there is any use. But there are at least two laboratories where they are trying to find commercial uses for other by-products of poultry and eggs, even for the eggs themselves.

I read the other day that they're going to begin using cotton, wheat, corn, soybeans, hides, lard, etc., to make the bodies of Ford cars.

These farm products will be combined to make a plastic material which is said to look like polished steel, but is 50 per cent lighter, 50 per cent cheaper, and ten times stronger.

It took somebody with what is generally considered a crazy, impractical idea to figure out anything like that.

One of these days somebody with an equally foolish idea is going to find a way to use the by-products of poultry and eggs.

—Frank Priebe's Weekly Letter to Poultrymen, November 14, 1940, Copyrighted.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Nov. 1	Dec. 1	Nov. 1	Dec. 1	Aggregate Jan.-Dec.	Nov. 1	Dec. 1	Aggregate Jan.-Dec.
North Atl.									
1929-38 (Av.)	96.9	87.6	93.9	20.5	21.7	473	17.8	20.4	402
1939	98.4	88.5	92.9	27.2	28.2	520	24.0	26.2	436
1940	97.2	86.8	92.4	26.2	30.2	518	22.5	27.7	434
E. N. Cent.									
1929-38 (Av.)	108.8	93.1	103.1	18.1	16.1	429	16.8	16.8	402
1939	107.3	98.0	107.4	22.7	24.0	473	22.3	26.2	440
1940	110.8	99.0	106.9	24.3	23.6	469	24.2	25.6	446
W. N. Cent.									
1929-38 (Av.)	118.8	98.8	109.6	15.3	11.4	388	15.1	12.7	395
1939	113.1	98.7	109.9	17.9	17.9	435	17.7	19.8	427
1940	118.6	96.9	109.9	21.4	13.8	428	20.8	15.4	438
South Atl.									
1929-38 (Av.)	58.9	52.6	55.8	20.5	18.8	414	10.8	10.5	211
1939	59.9	54.8	56.9	24.8	23.8	456	13.7	13.7	232
1940	59.9	53.4	57.5	24.8	24.1	449	13.4	14.1	236
South Cent.									
1929-38 (Av.)	65.0	57.4	60.6	20.1	16.2	394	11.6	9.9	220
1939	63.6	59.3	62.4	21.6	18.5	424	13.0	11.8	240
1940	65.8	56.7	59.2	23.7	19.0	415	13.6	11.4	231
Western									
1929-38 (Av.)	73.2	66.8	71.0	22.7	19.2	473	14.8	13.2	307
1939	72.6	67.5	70.4	26.5	24.2	496	17.0	16.1	314
1940	73.7	64.9	68.7	27.9	22.4	499	17.1	14.4	315
United States									
1929-38 (Av.)	84.5	73.3	79.4	18.5	15.8	417	13.7	12.7	302
1939	82.8	75.1	80.8	22.0	21.5	458	16.6	17.3	326
1940	85.1	73.5	79.5	23.9	20.2	452	17.6	16.4	328

November egg production, estimated at 1,874 million eggs, was the largest on record for the month. The next largest production was the 1,844 million eggs produced in 1939. The November 1940 output exceeded the 10-year (1929-38) average for November by about 30 per cent. This increased egg production was almost entirely due to the increased rate of lay, as the average number of layers was about the same as the 10-year average number. The seasonal decline in egg production this year from October to November was 15 per cent, compared with 10 per cent for the same period last year, and the 10-year average of 23 per cent.

The aggregate total production of eggs for 11 months, January to November, inclusive, was 36,717 million, an increase of 2 per cent over the production for the same months in 1939 and 6 per cent over the 10-year average.

The average rate of production per layer during November was the largest on record for the month—6.18 eggs, compared with the previous record high of 6.05 eggs in November of last year, and the 10-year (1929-38) average of 4.78 eggs per layer.

The aggregate average rate of production per layer from January to November was 128.0 eggs compared with 128.6 eggs for the same months in 1939, and the record high of 131.0 eggs in 1938. The 11-month rate of lay exceeded the 10-year average aggregate rate by 6 per cent.

November rate of production per bird was above that of last year in all parts of the country except the Rocky Mountain and Middle Western areas, where unusually cold weather and severe snow storms during November materially reduced the rate of lay. Gains over November 1939 of 8 per cent in the South Central, 3 per cent in the East North Central, 2 per cent in the North Atlantic and 1 per cent in the South Atlantic areas were practically offset by decreases of 2 per cent in the West North Central and 1 per cent in the Western areas.

Farm flocks during November averaged 303,247,000 layers, which is slightly less than in November last year, and slightly more than the 10-year (1929-38) average. Increases of 1 per cent in the North Atlantic, East North Central and South Atlantic areas were offset by decreases of 5 per cent and 1 per cent in the South Central and Western areas, respectively.

Fall prospects for the coming season have been favorable and have led farmers to cull lightly and save more than the usual proportion of pullets, with the result that the average number of layers in November was almost the same as a year ago, even though 12 per cent fewer chickens were raised this year.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Receipts of live poultry at Central Western packing plants declined during December, the marketings of young stock showing relatively sharper reductions than fowl. Statistical comparisons at this season are somewhat distorted by the holidays, but in general they point not only to a falling off in current marketings, but indicate that marketings of young stock are lighter than a year ago, with fowl marketings heavier, at least during the first half of the month. Receipts of dressed poultry at terminal markets in November were 11 per cent greater than a year earlier, and the December increase will probably be even more.

Egg supplies show some marked changes during the past month. Receipts at the four principal eastern terminal markets in November were 10 per cent heavier than a year earlier, with unusually heavy increases from the West North Central States, which include Minnesota, Iowa, the Dakotas, Nebraska and Kansas. November receipts from the Pacific Coast were a third lighter than last year. Since December 1, however, the relationship of terminal market receipts to a year ago shows a decrease of almost 15 per cent. Middle Western packing plant receipts since December 1 have continued to show decreases from a year ago, but weekly increases have averaged about 20 per cent. Country receiving plant receipts on the Pacific Coast increased slightly each succeeding week during December, but were about 16 per cent lighter than in December of last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	November 1940	November 1939	November % change	Jan. to Nov., Inc. 1940	Jan. to Nov., Inc. 1939	Jan. to Nov., Inc. % change
New England	32,487	25,174	+ 29.1	413,422	342,510	+ 20.7
Middle Atlantic	123,601	108,333	+ 14.1	1,924,167	1,810,707	+ 6.3
South Atlantic	8,582	8,525	+ 0.7	240,260	255,878	– 6.1
East North Central	121,404	121,247	+ 0.1	2,820,070	2,585,583	+ 9.1
West North Central	183,691	129,914	+ 41.4	7,217,141	7,161,760	+ 0.8
South Central	1,132	81	+1297.8	76,563	55,456	+ 38.1
Mountain	58,338	37,305	+ 56.4	379,126	280,636	+ 35.1
Pacific	77,130	117,341	– 34.3	486,416	486,205	+ 0.04
Miscellaneous	268	264	+ 1.5	4,744	4,764	– 0.4
TOTAL	606,633	548,184	+ 10.7	13,561,909	12,983,499	+ 4.5
Receipts of Dressed Poultry (pounds) at 4 Markets*						
New England	1,438,849	1,269,742	+ 13.3	14,607,626	12,854,138	+ 13.6
Middle Atlantic	2,394,831	1,641,109	+ 45.9	45,904,360	37,186,671	+ 23.4
South Atlantic	3,917,347	1,807,564	+ 116.7	26,778,784	16,758,942	+ 59.8
East North Central	6,817,056	6,109,808	+ 11.6	38,127,461	38,041,441	+ 0.2
West North Central	56,246,767	54,815,005	+ 2.6	197,855,657	176,336,854	+ 12.2
South Central	8,594,692	7,881,311	+ 9.1	22,823,089	22,834,050	– 0.05
Mountain	5,073,371	3,714,017	+ 36.6	8,909,624	6,815,318	+ 30.7
Pacific	2,625,505	1,414,285	+ 85.6	13,633,848	7,939,188	+ 71.7
Miscellaneous	0	0	–	128,680	58,117	+121.4
TOTAL	87,108,418	78,652,841	+ 10.8	368,769,129	318,824,719	+ 15.7

* New York, Chicago, Philadelphia, and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1940	Cases of Eggs 1939	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) 1939	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) 1939	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) 1939	Pounds of Fowl (000 omitted) % Chg.
Dec. 7	14,606	26,969	–45.84	6,077	4,618	+31.58	2,901	2,321	+24.97	3,077	2,199	+39.88
Dec. 14	16,044	24,355	–34.12	5,505	5,021	+ 9.63	2,469	2,641	– 6.52	2,976	2,286	+30.15
Dec. 21	19,489	36,288	–46.29	4,445	5,024	–11.52	1,882	2,412	–22.00	2,474	2,504	– 1.20
Dec. 28	24,258	34,536	–29.76	3,397	2,367	+43.50	1,229	983	+25.00	2,076	1,327	+56.42

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1940	1939	% Change from Previous Week	% Change from Last Year
December 7	60	47,536	57,029	+3.42	–16.65
December 14	59	48,612	58,084	+2.66	–16.31
December 21	59	48,945	58,561	+0.69	–16.42
December 28	59	49,700	59,748	+1.54	–16.82

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
December 7	30	36,959	+7.11	+11.07
December 14	26	36,442	+0.83	+ 7.47
December 21	23	25,626	–0.26	– 5.06
December 28	22	25,161	–1.30	+ 6.34

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1940	1939	1938	Avg. Egg Price per Doz. (Dollars) 1940	1939	1938	Avg. Feed Cost per 100 lbs. (Dollars) 1940	1939	1938
December 5	6.4	8.2	4.7	.307	.232	.338	1.97	1.96	1.60
December 12	6.8	9.0	4.8	.284	.218	.340	1.94	1.96	1.63
December 19	7.1	9.0	4.9	.271	.225	.333	1.92	2.02	1.63
December 26	7.2	8.9	5.1	.275	.226	.324	1.97	2.02	1.64

—Compiled by N. Y. State Dept. of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1940	1939	10-yr. Avg. 1929-38	Price of Fresh Graded Firsts (Dollars) 1940	1939	Cost of Ration per 100 lbs. (Dollars) 1940	1939
December 7	4.30	6.23	4.23	.290	.195	1.247	1.214
December 14	4.75	6.63	4.43	.257	.185	1.224	1.229
December 21	4.75	6.62	4.62	.253	.190	1.203	1.257
December 28	5.52	6.62	4.54	.221	.190	1.221	1.257

—Compiled from U. S. D. A. market reports.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1940	1939	1938	1937	1936	1935
November	5.17	6.03	4.20	5.11	5.57	4.98
January-November	8.07	7.08	6.70	8.47	7.09	6.52
Year		7.17	6.50	8.27	7.07	6.41

—Data Compiled by Edwin C. Voorhies, University of California

Egg Prices

The general trend of egg markets in December was downward, the Agricultural Marketing Service reports, but price changes lacked uniformity as between markets and grades, reflecting day-to-day local supply conditions and buying interest. New York prices declined a net of 3 cents on Mixed Colors, while Nearby and Pacific Coast eggs declined about 6 cents, down to approximately the August and September levels. A drop of 7 cents on Firsts at Chicago put prices of that grade almost as low as they were November 1.

Narrowing of the spread between prices of different grades first began in November, when average quality eggs advanced, while top qualities declined slightly. Fresh Firsts at Chicago gained 9 cents in November, and Mixed Color Firsts at New York 4 to 5 cents. Prices of Nearby and Pacific Coast eggs at New York, however, moved in the opposite direction to the extent of 1 to 2 cents per dozen. December changes brought prices of average and top quality still closer together, for during the month, Mixed Colors in New York reached the season's peak, while Nearby and Pacific Coasts were highest in October. The October difference between two grades within these classifications of 13 cents, had narrowed to 3 cents at the close of December. Pacific Coast eggs at New York continue to top Nearbys, even after the recent declines.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1940 Egg Prices at New York City

Kind	Dec. 6	Dec. 13	Dec. 20	Dec. 27	Dec. 27, '39
Mixed Color Firsts	27	26-26½	26	25	20
Nearby and Midwestern White Premium Marks	33½-35	29-30½	31-32½	28½-30	23¾-25¼
Nearby and Midwestern White Specials	33	28½	30½	28	23-23¾
Pacific Coast Specials	35-36	30½-31	32-32½	30½-31	25¾-26½
Nearby and Midwestern Brown Exchange Specials	33	29	29	27½-28	23-23¼

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1929-38	24.2	20.3	17.3	16.8	16.8	16.8	18.1	19.9	23.2	26.2	30.1	28.8
1939	18.8	16.7	16.0	15.5	15.2	14.9	16.5	17.5	20.6	22.9	25.8	20.5
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	

Poultry in Storage

Quantities of eggs moved out of storage in December this year have exceeded last year's movement by a considerable quantity. During the 4 weeks that ended December 28, the net reduction in the 35 cities was over a million cases, compared with a reduction of 765,000 cases in the corresponding period of last year. This year's active December movement has reduced current stocks in the 35 cities to holdings not greatly in excess of the 1935-39 average for this period. These stocks, which amounted to 632,900 cases as of December 28, included 312,600 cases owned by the Surplus Marketing Administration, or held by state relief distribution agencies. Thus, commercial stocks in these cities were only 320,300 cases, and, on this basis, stocks available for trading are actually lighter than a year ago.

Frozen egg stocks continue heavier than those of last year, but the past month's storage reduction has been of greater volume than that of December 1939. Stocks of this product on December 1 were 91,000,000 pounds, compared with 87,800,000 pounds on the same date last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	Dec. 1 5-Year Avg. 1935-39	Dec. 1 1939	Nov. 1 1940	Dec. 1 1940	% Change Dec. '39-Dec. '40
		(Thousands)			
Shell Eggs (cases)	2,037	1,580	4,144	1,968**	+24.5
Frozen Eggs (lbs.)	86,433	87,802	111,815	91,066	+ 3.7
Frozen Case Equivalent (cases)*	2,470	2,509	3,195	2,602	+ 3.7
Total (cases)	4,507	4,089	7,339	4,570	+11.7

* Frozen eggs are converted on the basis of 36 lbs. to the case.

** Includes 544,865 cases owned by the Surplus Marketing Administration for relief distribution.

Poultry Meat Prices

Mid-Month Farm Prices of Chickens Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1929-38	14.8	15.0	15.3	15.9	15.7	15.5	15.1	14.9	15.2	14.6	14.1	13.6
1939	14.0	14.2	14.3	14.4	13.9	13.4	13.7	13.0	13.6	12.7	12.4	11.7
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	

Except for holiday trading, the market has not been very active, although brisk enough to support price advances, particularly on younger stock. These advances range from 2 to 5 cents.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Eggs in Storage

Storage Holdings of Poultry

Kind	Dec. 1 5-Year Avg. 1935-39	Dec. 1 1939	Nov. 1 1940	Dec. 1 1940	% Change Dec. '39-Dec. '40
	(Thousand Pounds)				
Broilers	14,052	10,570	9,874	10,725	+ 1.4
Fryers	12,626	11,387	10,583	12,480	+ 9.6
Roasters	24,903	25,537	16,571	27,079	+ 6.0
Fowls	20,336	23,602	28,931	33,848	+43.4
Turkeys	18,376	26,498	11,870	32,074	+21.0
Ducks	6,895	8,064	10,821	9,340	+15.8
Miscellaneous	20,807	21,991	15,836	19,180	–12.8
Unclassified			9,771	14,330	
Total	117,995	127,649	114,257	159,056	+24.6

Storage stocks of frozen poultry increased significantly in late November and the last weekly report for the 35 cities shows a considerable increase again this month. Part of the December increase is probably turkeys, as was the case after the Thanksgiving holidays. Total frozen poultry stocks on December 1 were 114¼ million pounds, an increase of about 35 million pounds over a year earlier. In the 35 cities, the tendency in December has been toward an increase in the excess over a year earlier.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Hatchery Operations

Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

Geographic Section	No. of Plants	Eggs Set During November			Salable Chicks Hatched During November			Chicks booked Dec. 1 for Dec. or later delivery			
		1939	1940	% Chg.	1939	1940	% Chg.	No. of Plants	1939	1940	% Chg.
		Thousands			Thousands				Thousands		
N. Eng.	28	1,583	1,561	– 1	1,046	1,238	+18	15	1,873	2,040	+ 9
Mid. Atl.	12	292	330	+13	210	239	+14	11	352	371	+ 5
S. Atl.	33	1,133	1,283	+13	780	860	+10	18	1,143	1,275	+12
E. N. Cent.	38	871	892	+ 2	518	480	– 7	34	508	757	+49
W. N. Cent.	9	315	166	–47	188	131	–30	7	84	121	+44
S. Cent.	19	545	603	+11	359	357	– 1	11	607	781	+29
West.	25	651	545	–16	318	285	–10	21	2,808	2,707	– 4
U. S.	164	5,390	5,380	–	3,419	3,590	+ 5	117	7,375	8,052	+ 9

Production of hatchery chicks during November is reported by the Agricultural Marketing Service to be 5 per cent more than the November output last year. Reports from 164 plants having a combined capacity of 28 million eggs, showed a production of 3,590,000 chicks during November compared with 3,419,000 a year earlier. Hatcheries reporting for the first eleven months of 1940 showed a combined output of 103,251,000 chicks compared with 115,366,000 during the same period last year—a decrease of 11 per cent.

The New England States, Middle Atlantic States, and South Atlantic States—the large broiler-producing areas—reported increases of 18 per cent, 14 per cent and 10 per cent, respectively, in November. The increases in these three sections, which produce about 51 per cent of all the chicks hatched at this time of the year, more than offset the decreases reported in other areas, ranging from 1 per cent in the South Central States to 30 per cent in the West North Central States.

The immediate prospect continues to be favorable for larger hatchings. The movement of poultry from farms to the consumers during the past four months has been the largest on record. With no indication that the consumption of poultry has fallen off, and with the large off-farm movement of poultry about over for the year, a good demand for chicks for broilers can be expected. Egg prices strengthened considerably during November and the feed-egg ratio is now indicated to be more favorable to egg producers than it was at this time last year. For the week ending December 7, the feed-egg ratio at Chicago showed that it required 4.3 dozens of eggs to buy 100 pounds of feed, compared with 6.2 dozens for the same week last year.

That producers are taking more interest in poultry is evident in chicks booked for December or later delivery. Hatcheries reporting chicks booked on December 1 showed an increase of 9 per cent over the same time last year. All sections of the country with the exception of the Western States showed increased bookings. The increases ranged from 5 per cent in the Middle Atlantic States to 49 per cent in the East North Central States. The Western States reported a decrease of 4 per cent in chicks booked on December 1 compared with the same time last year.

Production of chicks during November was primarily for broilers. November hatchings for the entire country were 92 per cent heavy breeds and 8 per cent light breeds. In 1939 they were 90 per cent heavy breeds and 10 per cent light breeds.

—U. S. D. A. Poultry and Egg Production Report.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		November 1940	November 1939	Jan. to Nov., Inc. 1940	Jan. to Nov., Inc. 1939
Eggs in shell	(doz.)	349,789	243,984	4,252,845	2,389,650
Eggs and Yolks, frozen, dried or canned	(lbs.)	30,455	Not available	167,193	Not available
Live Poultry	(lbs.)	6,890	3,793	103,039	158,761
Dressed Poultry	(lbs.)	224,195	188,462	1,440,720	2,334,370

Imports of Eggs and Poultry

Commodity		November 1940	November 1939	Jan. to Nov., Inc. 1940	Jan. to Nov., Inc. 1939
Eggs in shell	(doz.)	14,376	31,451	203,030	298,777
Whole Eggs, dried	(lbs.)	0	9,500	40,950	50,000
Whole Eggs, frozen	(lbs.)	0	0	167	420
Yolks, dried	(lbs.)	204,043	102,280	2,234,116	628,355
Yolks, frozen	(lbs.)	0	0	420	25,330
Egg Albumen, dried	(lbs.)	12,400	38,200	310,000	453,779
Egg Albumen, frozen	(lbs.)	0	0	0	0
Live Poultry	(lbs.)	103,327	68,282	1,326,977	689,691
Dressed Poultry	(lbs.)	22,162	15,482	367,709	173,382
Poultry, prepared	(lbs.)	35,791	31,620	289,933	681,871

Egg Breaking Operations

Egg Breaking Operations During November, 1940

Commodity		Quantities reported to date for Nov. 1940	Same Firm Comparison Nov. 1939	Same Firm Comparison Nov. 1940	% change in 1939
		Pounds	Pounds		Per cent
Whole eggs (nothing added)		181,581	174,855	181,581	+ 4
Mixed eggs (plain)		25,790	40,330	25,790	− 36
Mixed eggs (emulsions, also with sugar, salt, etc.)		26,760	22,710	26,760	+ 18
Egg whites (all descriptions)		46,133	151,050	46,133	− 69
Egg yolks packed	Without salt, sugar, etc.	36,852	142,525	36,852	− 74
	With sugar	15,250	3,020	15,250	+405
	With salt	0	0	0	
	All yolk emulsions, including glycerine	6,875	9,605	6,875	− 28
Total—pounds		339,241	544,095	339,241	− 38
Total—case egg equivalent		9,693	15,546	9,693	
Number of firms reporting*		23	23		

* Firms, not plants. Some firms operate more than one plant.

OBSERVATIONS indicate that wide (8-inch), heavy shingles, scattered at random over the wire floors for roosting, will reduce the percentage of breast blisters. Many poultrymen are removing their heavy fryers from the wire after the eighth week and finishing them on regular floors.

—California Cultivator, December 14, 1940.

RESULTS OF LAYING TESTS

Out in front of all standard test pens are J. A. Hanson's White Leghorns at Storrs, after relinquishing that blue ribbon position for the first month of the present trial run. Their record at the end of the first 61 days beats that of the leader a year ago by 17 eggs, but is shy 2.5 points.

Second best pen to date is that of H. J. Hardin at Georgia. J. J. Warren's Reds at Long Island rate a close third. Warren's birds continue to do a magnificent job by taking over seven of the top 20 positions.

T. N. Wilcox's Barred Rocks remain at the head of their breed, and have gained much ground during the month. James H. Horne's team at Storrs has taken over number one spot among all New Hampshires. Carter-Dunham remains in front in the White Rock group.

Best hen to date is W. A. Seidel's White Leghorn at Texas, which has turned out an egg a day and earned 66.5 points thus far. Top individuals among other breeds are Colonial Farms' New Hampshire, J. J. Warren's R. I. Red, T. N. Wilcox's Barred Rock, and Carter-Dunham's White Rock.

The hardest working pen for November was E. B. Parmenter's R. I. Red outfit at Maine. These 13 birds shelled out 349 eggs good for 371 points. Warren's pen at Long Island was next with 350 eggs and 370.8 points.

Georgia leads in average production, with Storrs, Florida, Arizona and Texas following in that order.

Twenty Highest Pens, All Breeds, to December 1

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	720	722.40	Storrs
H. J. Hardin	Rhode Island Red	720	711.00	Georgia
J. J. Warren	Rhode Island Red	682	709.90	Long Island
Roberts Poultry Farm	Rhode Island Red	675	706.70	Storrs
T. N. Wilcox	Barred Rock	695	700.70	Georgia
J. J. Warren	Rhode Island Red	697	699.90	Florida
E. B. Parmenter	Rhode Island Red	661	697.10	Maine
J. J. Warren	Rhode Island Red	692	693.05	Florida
George M. Heberer	White Leghorn	692	692.45	Florida
W. H. Wilson	Rhode Island Red	726	692.15	Georgia
J. J. Warren	Rhode Island Red	699	687.20	Georgia
Kauder's Pedigreed Leghorns	White Leghorn	705	681.15	Texas
J. J. Warren	Rhode Island Red	682	679.35	Storrs
J. J. Warren	Rhode Island Red	692	677.95	Storrs
Crescent Farms	White Leghorn	678	675.90	Florida
W. H. Wilson	Rhode Island Red	696	675.30	Georgia
G. B. Treadwell	Rhode Island Red	661	675.25	Maine
G. B. Treadwell	Rhode Island Red	673	674.70	Storrs
J. J. Warren	Rhode Island Red	676	672.55	Maine
George M. Heberer	White Leghorn	688	672.50	Texas

High Pen in Each Standard Test to December 1—(61 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	720	722.40	Storrs
H. J. Hardin	Rhode Island Red	720	711.00	Georgia
J. J. Warren	Rhode Island Red	682	709.90	Long Isld.
J. J. Warren	Rhode Island Red	697	699.90	Florida
E. B. Parmenter	Rhode Island Red	661	697.10	Maine
Kauder's Pedigreed Leghorns	White Leghorn	705	681.15	Texas
Missouri Valley Hatchery	Rhode Island Red	617	663.50	Missouri
Rapp's Poultry Farm	White Leghorn	652	648.85	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	644	647.10	Western New York
J. A. Hanson	White Leghorn	650	646.70	Pennsylvania
J. A. Hanson	White Leghorn	650	643.70	Rhode Island
George A. Pearce	Rhode Island Red	671	642.45	Passaic, N. J.
J. J. Warren	Rhode Island Red	638	640.35	Oklahoma
J. J. Warren	Rhode Island Red	656	639.30	Paterson, N. J.
E. B. Parmenter	Rhode Island Red	624	636.60	California
Bodine's Pedigreed Leghorns	White Leghorn	667	615.55	Central New York
Gold Spot Hatchery	White Leghorn	589	601.35	Arizona
J. J. Warren	Rhode Island Red	557	560.70	Michigan

High Pen Each Standard Test for November

Owner	Breed	Eggs	Points	Test
E. B. Parmenter	Rhode Island Red	349	371.10	Maine
J. J. Warren	Rhode Island Red	350	370.80	Long Island
H. J. Hardin	Rhode Island Red	367	369.45	Georgia
J. A. Hanson	White Leghorn	354	365.25	Storrs
E. B. Parmenter	Rhode Island Red	349	360.40	Passaic, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	356	355.70	Texas
E. B. Parmenter	Rhode Island Red	360	355.20	Paterson, N. J.
Crooks Farm	Rhode Island Red	340	344.10	Hunterdon, N. J.
George M. Heberer	White Leghorn	334	339.80	Florida
Missouri Valley Hatchery	Rhode Island Red	311	338.65	Missouri
Foreman Poultry Farm	White Leghorn	323	333.20	Rhode Island
J. J. Warren	Rhode Island Red	325	329.80	Western New York
Gold Spot Hatchery	White Leghorn	312	328.30	Arizona
Bodine's Pedigreed Leghorn	White Leghorn	340	326.35	Central New York
E. B. Parmenter	Rhode Island Red	314	324.95	California
G. B. Treadwell	Rhode Island Red	305	311.45	Pennsylvania
J. J. Warren	Rhode Island Red	296	302.30	Oklahoma
Saline Valley Farms	Barred Rock	285	271.50	Michigan

High Pen in Each Breed to December 1—(61 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	720	722.40	Storrs
H. J. Hardin	S. C. Rhode Island Red	720	711.00	Georgia
T. N. Wilcox	Barred Rock	695	700.70	Georgia
James H. Horne	New Hampshire	648	665.05	Storrs
Carter-Dunham Breeding Hatchery	White Rock	603	573.95	Georgia
R. S. Johnson	White Wyandotte	495	499.95	Missouri
Paul Hansen	Black Australorp	482	452.90	California
R. S. Thomas	Ancona	487	449.90	Pennsylvania
S. E. Raymond	Lamona	432	436.75	Storrs
Lindstrom Poultry Farm	Buff Minorca	408	356.40	Texas
Illinois Hatchery	Brown Leghorn	307	288.55	Texas
Raymond Murphy	White Giant	273	279.65	Missouri
Howard C. Jones	Buff Orpington	293	276.80	Florida
E. J. Covey	Black Minorca	280	275.45	Texas
Iowa Master Breeders	R. C. Rhode Island Red	245	238.85	Texas
Superior Hatchery	Light Brahma	232	231.85	Georgia
Ward's Poultry Farm	Buff Leghorn	162	138.05	Oklahoma
Colonial Farms	White Minorca	74	75.55	Missouri

High Hen in Each Breed to December 1—(61 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	61	66.50	Texas
Colonial Farms	New Hampshire	59	64.60	Texas
J. J. Warren	S. C. Rhode Island Red	59	64.40	Maine
T. N. Wilcox	Barred Rock	57	61.00	Georgia
Carter-Dunham Breeding Hatchery	White Rock	57	57.75	Georgia
Harvey E. Taylor	White Wyandotte	54	54.95	Texas
Paul Hansen	Black Australorp	50	50.20	California
R. S. Thomas	Ancona	52	49.50	Pennsylvania
Raymond Murphy	White Giant	45	48.45	Missouri
S. E. Raymond	Lamona	43	45.50	Storrs
Superior Hatchery	Light Brahma	48	44.90	Texas
Howard C. Jones	Buff Orpington	45	44.65	Florida
Iowa Master Breeders	R. C. Rhode Island Red	42	43.40	Texas
E. J. Covey	Black Minorca	44	42.95	Texas
Lindstrom Poultry Farm	Buff Minorca	38	37.75	Texas
Illinois Hatchery	Brown Leghorn	43	37.10	Texas
Colonial Farms	White Minorca	30	31.55	Missouri
Ward's Poultry Farm	Buff Leghorn	27	21.85	Oklahoma

High Hen in Each Standard Test to December 1—(61 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	61	66.50	Texas
E. B. Parmenter	Rhode Island Red	61	66.20	Pennsylvania
J. J. Warren	Rhode Island Red	59	64.40	Maine
E. B. Parmenter	Rhode Island Red	61	64.30	Storrs
Rapp's Poultry Farm	White Leghorn	58	63.30	Hunterdon, N. J.
Glendale Poultry Farm	Rhode Island Red	59	63.20	Rhode Island
J. J. Warren	Rhode Island Red	58	63.00	Long Island
J. J. Warren	Rhode Island Red	57	62.50	Florida
Missouri Valley Hatchery	Rhode Island Red	57	62.10	Missouri
H. J. Hardin	Rhode Island Red	58	61.90	Georgia
E. B. Parmenter	Rhode Island Red	57	59.10	California
Gold Spot Hatchery	New Hampshire	59	58.90	Arizona
Fred Schempf	White Leghorn	56	58.70	Central New York
Missouri Valley Hatchery	Rhode Island Red	59	58.70	Oklahoma
George A. Pearce	Rhode Island Red	57	58.55	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	55	58.30	Paterson, N. J.
J. A. Hanson	White Leghorn	57	57.25	Western New York
Colonial Farms	New Hampshire	58	55.95	Michigan

High Hen in Each Standard Test for November

Owner	Breed	Eggs	Points	Test
J. J. Warren	Rhode Island Red	30	33.00	Florida
E. B. Parmenter	Rhode Island Red	30	33.00	Pennsylvania
Colonial Farms	New Hampshire	30	33.00	Texas
E. B. Parmenter	Rhode Island Red	30	32.70	Maine
T. N. Wilcox	Barred Rock	30	32.55	Georgia
E. B. Parmenter	Rhode Island Red	30	32.00	Storrs
Rapp's Poultry Farm	White Leghorn	29	31.90	Hunterdon, N. J.
Missouri Valley Hatchery	Rhdoe Island Red	29	31.90	Missouri
E. B. Parmenter	Rhode Island Red	29	31.80	Rhode Island
J. J. Warren	Rhode Island Red	29	31.70	Long Island
Gold Spot Hatchery	New Hampshire	30	31.45	Arizona
George A. Pearce	Rhode Island Red	30	31.25	Passaic, N. J.
Dryden Poultry Breeding Farm	Barred Rock	30	31.20	California
W. B. Coles	White Leghorn	29	31.00	Paterson, N. J.
J. A. Hanson	White Leghorn	30	30.90	Western New York
Fuzzydele Farms	Barred Rock	28	30.80	Central New York
Foreman Poultry Farm	White Leghorn	28	29.45	Oklahoma
Colonial Farms	New Hampshire	30	28.70	Michigan

Twenty Highest White Leghorn Pens in Country to December 1

Owner	Eggs	Points	Test
J. A. Hanson	720	722.40	Storrs
George M. Heberer	692	692.45	Florida
Kauder's Pedigreed Leghorns	705	681.15	Texas
Crescent Farms	678	675.90	Florida
George M. Heberer	688	672.50	Texas
J. A. Hanson	676	660.00	Storrs
Foreman Poultry Farm	662	649.45	Georgia
Rapp's Poultry Farm	652	648.85	Hunterdon, N. J.
J. A. Hanson	650	646.70	Pennsylvania
J. A. Hanson	650	643.70	Rhode Island
Pinebreeze Farm	663	643.30	Florida
Booth Farms and Hatchery	659	638.25	Georgia
George M. Heberer	657	636.35	Texas
Creighton Brothers	643	635.35	Hunterdon, N. J.
Guy A. Leader	625	632.10	Storrs
Thomascello Leghorn Breeders	630	627.75	Florida
Kauder's Pedigreed Leghorns	633	621.45	Georgia
Hollywood Poultry Farm	703	619.90	Georgia
Bodine's Pedigreed Leghorns	667	615.55	Central New York
Kauder's Pedigreed Leghorns	610	614.40	Storrs

Twenty Highest Rhode Island Red Pens in Country to December 1

Owner	Eggs	Points	Test
H. J. Hardin	720	711.00	Georgia
J. J. Warren	682	709.90	Long Island
Roberts Poultry Farm	675	706.70	Storrs
J. J. Warren	697	699.90	Florida
E. B. Parmenter	661	697.10	Maine
J. J. Warren	692	693.05	Florida
W. H. Wilson	726	692.15	Georgia
J. J. Warren	699	687.20	Georgia
J. J. Warren	682	679.35	Storrs
J. J. Warren	692	677.95	Storrs
W. H. Wilson	696	675.30	Georgia
G. B. Treadwell	661	675.25	Maine
G. B. Treadwell	673	674.70	Storrs
J. J. Warren	676	672.55	Maine
E. B. Parmenter	666	670.70	Long Island
L. D. Bartholomew	648	664.40	Storrs
Missouri Valley Hatchery	617	663.50	Missouri
J. J. Warren	639	657.65	Texas
E. B. Parmenter	661	648.85	Georgia
J. J. Warren	644	647.10	Western New York

Twenty Highest New Hampshire Pens in Country to December 1

Owner	Eggs	Points	Test
James H. Horne	648	665.05	Storrs
George A. Pearce	669	646.60	Hunterdon, N. J.
Thomas J. Harrold	671	644.25	Georgia
Colonial Farms	619	638.95	Texas
A. J. Williams	629	617.90	Florida
Thomas J. Harrold	612	595.90	Georgia
Williamson's New Hampshire Farm	589	593.35	Florida
Pine Mt. Valley Farms	652	593.20	Georgia
C. D. Cummings	656	592.45	Georgia
W. G. Ashby	591	590.20	Arizona
Williamson's New Hampshire Farm	576	571.20	Florida
James H. Horne	563	561.50	Maine
Goodwin's Poultry Farm	570	559.35	Storrs
Seven Oaks Farm	573	558.00	Florida
Joachim Breeding Farm	544	553.80	Long Island
Ned C. Willoughby	587	553.30	Florida
Wene Chick Farm	575	551.20	Storrs
Ned C. Willoughby	578	543.80	Georgia
A. J. Williams	519	532.45	Florida
Hubbard Farms	535	529.00	Storrs

Twenty Highest Barred Plymouth Rock Pens in Country to December 1

Owner	Eggs	Points	Test
T. N. Wilcox	695	700.70	Georgia
Fuzzydele Farms	624	618.10	Storrs
P. N. Hibbard	663	614.35	Storrs
David T. Cohen	612	593.70	Storrs
David T. Cohen	583	581.80	Georgia
T. N. Wilcox	577	577.30	Florida
Dryden Poultry Breeding Farm	572	566.45	California
Dryden Poultry Breeding Farm	585	566.35	Storrs
Broad Acres Farm	550	564.45	Storrs
Fuzzydele Farms	546	558.50	Central New York
Dryden Poultry Breeding Farm	580	556.05	California
David T. Cohen	540	553.05	Arizona
Booth Farms and Hatchery	536	542.30	Missouri
J. W. Schaible	557	535.40	Hunterdon, N. J.
Angus J. Urquhart	541	534.05	Storrs
Booth Farms and Hatchery	556	531.00	Georgia
David T. Cohen	512	522.10	Pennsylvania
R. C. Cobb	536	518.05	Storrs
Dryden Poultry Breeding Farm	509	507.65	Missouri
E. B. Parmenter	503	500.70	Pennsylvania

Twenty Highest White Plymouth Rock Pens in Country to December 1

Owner	Eggs	Points	Test
Carter-Dunham Breeder Hatchery	603	573.95	Georgia
Albert C. Lawton	607	562.80	Storrs
Kalerok Farm	514	522.55	Rhode Island
Drumm Egg Farm	518	521.35	Georgia
Airy View Farm	531	515.20	Hunterdon, N. J.
Carter-Dunham Breeder Hatchery	512	514.25	Storrs
Carter-Dunham Breeder Hatchery	520	512.80	Texas
John Spangenberg	525	502.20	Maine
Drumm Egg Farm	512	496.50	Florida
Carter-Dunham Breeder Hatchery	503	487.75	Georgia
Gene-Garden Poultry Farm	519	486.45	Maine
Pay Streak Hatchery	495	473.25	Georgia
Booth Farms and Hatchery	508	472.90	Texas
Alfred MacMillan	491	460.90	Texas
Pay Streak Hatchery	473	459.00	Florida
Frank L. Douglas	480	456.00	Storrs
Townsley Trapnest Farm	454	446.50	Georgia
Drumm Egg Farm	442	445.85	Florida
C. W. Winkler	458	445.15	Oklahoma
H. J. Zweier	464	442.10	Pennsylvania

Average Production in Each Test to December 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Nov.	Per Cent Mortality to date
Georgia	1,300	40.43	37.78	22.41	2.00	2.92
Storrs	1,300	38.14	36.86	23.18	1.23	1.46
Florida	1,248	38.02	36.46	23.01	.96	1.20
Arizona	390	35.96	35.33	23.56	.76	1.02
Texas	1,300	35.70	34.25	23.01	.92	.92
Hunterdon, N. J.	650	35.13	33.94	23.18	1.23	1.53
Pennsylvania	1,027	34.31	32.79	22.92	1.36	1.65
Paterson, N. J.	169	31.10	29.96	23.11	.59	.59
Passaic, N. J.	1,014	31.37	29.70	22.70	.88	.98
California	650	30.40	28.95	22.84	.30	1.38
Oklahoma	650	30.24	28.00	22.22	1.84	2.61
Long Island	1,131	29.51	27.76	22.58	1.06	1.32
Maine	975	28.60	27.09	22.72	1.23	1.23
Missouri	780	26.84	27.05	24.19	1.02	1.02
Rhode Island	546	26.98	26.84	23.85	.91	2.38
Central New York	910	25.40	23.60	22.29	.65	.98
Western New York	884	22.93	22.22	23.25	1.01	1.01
Michigan	780	21.93	20.00	21.86	3.33	4.23
All Tests	15,704	31.96	30.51	22.89	1.10	1.59

High Pen, Each Breed, in Illinois Non-Standard Test to December 1

Owner	Breed	Eggs	Points
Walter Swanson	White Leghorn	217	195.70
Belldear Hatchery	White Rock	177	177.55
Harless Hatchery	Barred Rock	159	156.15
Illinois Hatchery	New Hampshire	157	153.10
Wallace Moody	Buff Rock	130	123.45
Belldear Hatchery	White Wyandotte	104	109.50
Welch Hatchery	Rhode Island Red	104	99.15
Berry-Ajax Hatchery	Black Australorp	74	67.45
Illinois Hatchery	Brown Leghorn	57	56.10

High Pen in Each Breed, Vineland, N. J., Hen Test to December 1

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	227	246	Two-Year
J. A. Hanson	White Leghorn	213	229	Two-Year
Vaughn's Hatchery	New Hampshire	187	198	Two-Year
E. R. Rutter	White Rock	174	188	Two-Year
Eben Wood	Barred Rock	127	137	Two-Year
M. A. Dounay	White Leghorn	177	192	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	112	122	Four-Year
J. J. Warren	Rhode Island Red	58	61	Four-Year
Kwality Farm	White Leghorn	287	306	Mixed-Age
Quimby School	White Rock	112	113	Mixed-Age
E. B. Parmenter	Rhode Island Red	100	104	Mixed-Age
Kerr Chickeries	Barred Rock	92	98	Mixed-Age
Wene Chick Farms	New Hampshire	81	87	Mixed-Age
Schwegler's Hatchery	White Wyandotte	75	80	Mixed-Age

Poultry Feeds Take Fish Oils from Soap

It is predicted that the poultry feed field this year will oust soap production from its first place position as a consumer of fish oil. This change has been brought about through the demand for fish oils as a vitamin source in poultry feeds and the subsequent price increase with little regard for competitive factors.

According to an article in the Journal of Commerce, demand for the oil for its vitamin content is so great that the price has been boosted to a point where it is practically prohibitive for soap and paint manufacturers. No buying interest has been reported from these industries lately, although this may be due to an adequate supply purchased this summer when the price was low.

—Feedstuffs, December 14, 1940.

AS PART of the program to insure the health of the birds exhibited at the 92nd Boston Poultry Show this month, paper cups will be used for water instead of the customary galvanized iron receptacles which are so hard to clean and satisfactorily disinfect. The paper cups at Boston, declares Featheredfax, are used once and then burned, and this may perhaps account for the fact that there were no sick birds at the Boston Show last winter.

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Effect of State Grading and Labeling Laws on the Marketing of Eggs

By EDGAR L. BURTIS

Bureau of Agricultural Economics, Washington, D. C.

Condensed from a Talk

THE egg industry of the United States is nation-wide, and enjoys a national market. For this reason, a state egg law or regulation is of interest and concern to producers and dealers in eggs who live outside the state as well as to those who live within it. Marketing of eggs is a nation-wide activity, based on a national market, and it is, therefore, both proper and important to see how state laws affect interstate trade.

Not all state laws governing the marketing of eggs are detrimental to interstate trade in eggs. On the contrary, they facilitate such trade and benefit the egg industry in many ways. Looking at the production and marketing of eggs as a national industry with a national market, however, there are some flaws in state legislation.

Lack of Uniformity

Twenty-four states have set up size grades. In four of these states, the use of the size grades is entirely voluntary. In the others, it is compulsory to grade at least certain eggs at a certain point in the marketing process as to size, and to label them

Talk presented at 22nd Annual Meeting of the American Farm Bureau Federation
Baltimore, Md., Dec. 9, 1940

accordingly. Some states require all eggs to be graded and labeled for size in all types of sale, except sales by producers to dealers.

If the size grades be compared as among the states that make grading and labeling compulsory for at least part of the eggs sold, a surprising lack of uniformity will be found.

The sets of size grades set up by Connecticut, Maryland, Massachusetts, West Virginia and New Jersey are almost the same, and Colorado, Utah, and Washington have about the same sets. But Maine, Rhode Island, and Vermont differ from Connecticut and Massachusetts, and New Hampshire disagrees with all of the other five. The standards of Arizona, Wyoming, Oregon, California, and North Dakota differ among themselves as well as from any of the other states. Thus, nine different sets of compulsory or partially compulsory state size grades are in effect, if we disregard minor differences, and 15 if we take into account all differences.

Quality grades are based on more factors that size grades, and, if a comparison is made, a much greater degree of uniformity will be found among them than among the size grades. Many states have adopted the Federal grades or grades differing only slightly from the Federal grades. A wide variation is to be found among the states, however, in the tolerances permitted.

No sweeping generalization can be made about the effect of nonuniformities on interstate trade. It seems evident that if all states had the same grades and grade specifications, the flow of eggs in interstate commerce would be facilitated. Yet it may be that consumers' tastes in different states vary and that at least some slight variations in state grades would be desirable. Nevertheless, substantial and numerous differences among the states in their grading systems can hardly fail to place obstacles in the way of the interstate movement of eggs, and this is especially true when the use of grades is made compulsory.

Labeling Not Based On Quality

There are several kinds of state labeling requirements that are not based on quality tests. Such requirements are open to suspicion as having been made with the intent of, or having the effect of, discouraging consumers from buying eggs produced outside the state. Insofar as consumers are affected in this way, such requirements must be counted as restrictive to interstate trade.

Requirements that the name and address of the candler, packer, or shipper of a case of eggs must be indicated on the case do not fall into this category. These requirements are useful in preventing fraud and misrepresentation.

There are several states that require out-of-state eggs to be labeled "Shipped" or "Out-of-State." Usually, they require eggs produced in the state to be labeled with the name of the home state. There seems to be an effort here to prejudice consumers against buying out-of-state eggs. There is even a question of the essential truthfulness of the term "Shipped," for, in many cases, the eggs brought in across the state border may travel a shorter distance before they are sold than eggs produced and sold within the state.

A few states simply require that eggs must be labeled with the name of the state where produced. Perhaps this is useful information to consumers. Consumers may have definite preferences with respect to the part of the country in which the eggs they wish to buy were produced. Whether compulsory labeling with the state of origin is a requirement that can be complied with by large interstate wholesalers who draw eggs from many different states and who may buy eggs in central markets where their identity has been lost, leaves room for question. Consumer preference for home-state-produced eggs could probably be as effectively exploited by requiring such eggs to be labeled with the name of the home state and not requiring any labeling such as "Shipped" or "Out-of-State" or the name of the state of origin in connection with eggs produced outside the state.

Many states require cold-storage eggs to be labeled as such. Twenty-five or thirty years ago, when this requirement was first adopted in several states, there were probably good reasons for it. Cold-storage methods and the handling of eggs in cold storage had not been developed to the point they have reached today.

A still more important difference between then and now was the fact that grades based on candling tests had not come into general use. At that time, then, labeling eggs as cold-storage eggs may have served a useful purpose in indicating to consumers a lower quality egg.

Storage Eggs Are Often Superior

Whatever the situation was 25 or 30 years ago, we now have well-developed quality grades based on candling, which serve to indicate the quality of eggs. Cold-storage eggs are often superior in quality to recently gathered eggs that have been poorly cared for.

In states where eggs are not produced in so large a quantity as they are consumed, the balance may be expected to be made up in large measure by cold-storage eggs produced in other states. Under such conditions, requiring cold-storage eggs to be so labeled might tend to operate as a barrier to interstate trade. That is, it might influence consumers to buy fewer out-of-state eggs (the cold-storage eggs) through the unfavorable connotation of the term "cold-storage," than they would if accurately informed of the quality of the eggs.

"Held" Eggs

A somewhat similar situation is created by the requirement of one state that all eggs more than five days old be labeled "Held." It is well established that the quality of an egg depends much more on the care it has received while being held than on the length of time it has been held. The requirement, therefore, attaches a stigma to eggs more than 5 days old even if they have been properly cared for and are of the best quality. At the same time, it places eggs produced outside the state under the stigma, because few eggs produced outside the state could reach retailer's shelves within 5 days.

Finally, three states which have set up a grade for high-quality eggs with specifications based on candling tests, also require that eggs must have been produced within the state to qualify for this top grade. None of these states prohibits out-of-state eggs from being sold under the name of the top Federal grades, if they qualify for such grades, but if state enforcement officials actively promote the use of the state grades while adopting a passive attitude toward the use of Federal grades, the special top grade created for home-state eggs will probably be the only high-quality grade in common use in the state. Obviously, such a situation works to the disadvantage of high-quality out-of-state eggs.

Make Roosting Pleasant

Roosting quarters are to the hen what a bed is to the owner. Birds change position occasionally on the roosts at night, even though comfortable. However, if there are direct drafts, there is a continuous movement and constant unrest. This causes unnecessary activity and possible colds. Provide comfortable roosting quarters. Allow six to nine inches of space per bird and from thirteen to fifteen inches between the roosts. Equalized physical conditions at all points on the roosts will pay dividends.

—Edward S. Walford, Poultry Item, February, 1941.

❝ THE TIMID HEN that doesn't like the jostle of other birds gets plenty of feed in William A. Benitt's laying house in Washington county, Minnesota. Such hens spend much time on the roost. Benitt has feeders there for them and they get enough mash to lay profitably.

—Cappers Farmer, January, 1941.

Let's Sell Chicken, Too

By J. C. HUTTAR

Reprinted from Everybodys Poultry Magazine

BIG business has long ago learned that profits may come from by-products instead of the main article. Meat packers, for instance, salvage everything but the "beller."

Poultry meat may be the main article of production on some poultry farms, but it is the by-product of egg production for most chicken raisers. Whichever it is, I feel sure that it deserves more consideration than it is getting on most farms.

Now, there isn't room to write about all forms of poultry meat that come from farms in the length of article you and I like to read, so I am going to stick to the three most common ones, namely broilers, roasters, and fowls.

BROILERS

Whether you keep broilers on a commercial scale or as a side-line to raising pullets, it looks to me as if you have a six-point job on your hands in order to turn out a profit. Here are the six points:

1. Fast growth
2. Fast, smooth feathering
3. Golden skin and shank color
4. Low mortality
5. Low cost per pound of gain
6. Good market price

It's a big order, I'll admit, but it's being done.

Out of the six, I would say that the first, second, and fourth are strongly influenced by breeding. And, since these three have a whale of a lot to do with No. 5 and, to some extent, No. 6, we might even think of them as partly inherited.

This merely goes to show how important it is to get birds from the right stock.

Commercial Production

The Del-Mar-Va Peninsula is famous as the largest scale broiler producing area in eastern United States. The Maryland Agricultural Experiment Station made a study of 231 farms in the Maryland part of the Peninsula in 1934 and 1935. Things haven't changed too much since that time in broiler production, so some of the highlights in their findings should be worth while. Here are the ones I consider especially significant to commercial broiler raisers.

The average cost per bird was 48.8 cents. The average income per bird was 54.5 cents, which left an average profit of 5.7 cents per bird. Only about 62 per cent of the farms made money and the rest lost.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, February, 1941)

Of the total costs, feed made up 51 per cent and cost of baby chick 24 per cent, for a total of 75 per cent in these two items.

It was unprofitable to market broilers before they weighed 2½ lbs., and the farms that made the most profit sold birds over 3 lbs.

Barred Rocks and Red Rock crossbreeds were on over 90 per cent of the farms.

Crowding does not pay. The most profitable farms allowed 100 square feet of floor space for each 150 to 174 chicks. Sanitation and low mortality were very important to success.

Now, combining this study with my own observations, let's see if we can get a formula for successful broiler production. Let's go back to the 6 points listed above.

Rapid Growth: You must start with a chick from rapid growing stock. You must feed it the first eight weeks on a well-balanced, high-protein (18-22 per cent), high-vitamin mash of good quality. From then on, scratch grains can be added, a little at first and gradually increasing. Finally, the birds must have ample room, enough hopper space, and sanitary surroundings.

Fast Smooth Feathering: Smooth, fast feathering is also a matter of inheritance and the same feeding program which gives rapid growth. Crowded, too-warm brooder houses definitely cause rough, slow feathering. It is well, therefore, to cool the brooder house as fast as the birds can take it without evident discomfort.

Good Color of Skin and Shanks: Good color in the yellow skinned varieties of chickens, such as Rocks, Reds, Wyandottes, Leghorns, etc., is mostly a matter of good health and proper feeding. Worms, other parasites, and most diseases rob the skin of color. Pale shanks show this first.

The feeds which especially produce this golden color are yellow corn, alfalfa meal and other green feeds, and corn gluten meal.

Low Mortality: Get good stock, don't crowd it, overheat it nor chill it, but give it air, sunshine and plenty of good feed and water and you'll have low mortality.

Low Cost: Low mortality and quick growth are the best ingredients for low cost per bird. I wouldn't try to save on chick cost if it meant any sacrifice of quality. Crowding is poor economy, too.

I do, however, believe that there is room for cuts in feed costs. I might suggest home grown grains and grass as two possibilities.

Good Price: According to the Maryland study, the growers who marketed their birds close to home made out best. This was probably due to low shrinkage and low selling costs.

Time of marketing is very important. Peak prices are generally reached in March and September. The low spots come in May and December.

Side-Line Broilers

There isn't any real difference between broilers as a by-product of egg production and commercial growing, unless it is the matter of breed.

Many people prefer the light breeds such as Leghorns for market egg producers, while the heavies make more profitable broilers.

With the light breeds, the question comes up as to whether to get straight-run chicks or sexed pullet chicks. That depends on your market. If you have to depend on shipping to a large terminal market, then I think this general rule might apply.

December or January hatched chicks, sold as broilers before Easter should show a profit. The same is true of late May or June chicks sold before the end of September. But, in most years, Leghorns hatched at other times of the year might better be only pullets, if you have to buy them.

ROASTERS

Roasters are usually only males 4 to 7 months old weighing from 4 lbs. on up, according to breed and strain.

It takes more feed per pound of gain as birds increase above the broiler stage. But this extra feeding is not so expensive because more scratch grains are fed proportionately to the higher cost mash. Also, there are no additional chick costs nor fuel costs. Labor decreases a little per bird in the older stages. Other cost items are about proportionate to age and weight of birds.

From a number of cost account studies I have seen, I would say that the following comparison tells the story between a broiler and roaster on a per bird basis.

2½ lb. Broiler	Cost Item	5 lb. Roaster
12¢	Baby chick	12¢
3¢	Fuel	3¢
1½¢	Litter	3¢
4¢	Labor	7¢
2½¢	Marketing	5¢
2½¢	Overhead	5¢
20¢	Feed	55¢
45½¢	Total cost per bird	90¢
18¢	Cost per lb.	18¢

Marketing

Taking the comparative figures above, I'm sure that, in a wholesale market, it is easier to clear 18 cents a pound for broilers than for roasters. It is much better to have a local market in which there isn't the constant, heavy competition from corn belt roasters and storage poultry, to make roasters a paying proposition.

As with broilers, the first 3½ months and the month of September generally are the best market periods.

FOWLS

A fowl is a mature female. In most cases she's the bird that has stopped laying in a market-egg flock.

With fowls it isn't a question of making money, but merely to recover as much of their cost of rearing as possible.

Two things seem to have the biggest bearing on how successfully you can do this. They are breed and when to sell.

Breed: A Leghorn or other light breed pullet will cost 75 cents to 85 cents to raise up to laying age and will bring 40 to 50 cents as a cull hen. This means 25 to 45 cents depreciation. A pullet of one of the heavy breeds will cost $1.00 to $1.10 to rear and bring 90 cents to $1.00 as a cull hen. The depreciation is nothing to 20 cents. Some poultrymen have developed a system of keeping heavy breed layers which they claim shows an appreciation instead of a depreciation. Here's the way it's done:

Start chicks in January, February, or March. Push them for all the eggs you can get until the birds are a year old. With good breeding, you should get around 100. Then sell the entire flock. The birds are in good condition and are generally heavier than when they started to lay. The price of poultry is good. Egg production was high when egg prices were high.

When to Market: The seasonal price swing on fowls shows that it is generally highest in January and declines pretty steadily until October or November. So, continuous culling nets a better average price than a single culling in the summer or fall.

But here's something very few folks think of. When a bird is in a full molt, she weighs ½ to 1 lb. less than she did just before she quit laying. By culling every week between April and October, birds can be sold before this drop in weight comes. It's a simple job to pick up most of these birds with a flashlight on the perches at night or with a hook from the floor at feeding time. And it isn't hard to learn to spot these birds with a little practice.

Preventing Piling in Brooding

We have found, after a thorough try-out, that the placing of alfalfa or straw in the corners of the brooder room, making it compact and sloping, is entirely satisfactory as a protection against piling up of chicks.
—Gray Dewey, Nulaid News.

WILLIAM SANDERS, owner of a big hatchery in Hurricane, Utah, is the proud possessor of a four-legged turkey which is attracting a lot of attention wherever the bird is exhibited.
—Turkey Talk, November, 1940.

Successful Vaccination for Fowl Pox and Laryngotracheitis

By F. R. BEAUDETTE

N. J. Agricultural Experiment Station

Condensed from a Talk

In recent years, absolutely effective means have been developed for the prevention of fowl pox and laryngotracheitis, but still there are no specific drug treatments for these afflictions.

Before we enter on the discussion of prevention, that is, vaccination, it is well to describe the conditions under which vaccination is justified. The conditions are different for the two diseases. In the case of pox, we can safely recommend routine vaccination in any state where the disease is at all common. It matters not how carefully chickens are reared, because pox is transmitted by mosquitoes. On the contrary, laryngotracheitis is not spread in this way and routine vaccination of an otherwise clean plant is not advisable.

In this connection we should point out that many supposed cases of laryngotracheitis are not that disease, and, at the same time, many outbreaks of laryngotracheitis are referred to as "colds." In the case of any respiratory disease, an accurate diagnosis is extremely important.

There are two kinds of vaccine for fowl pox: fowl pox and pigeon pox. These may be produced on the fowl and pigeon, respectively, or cultivated in embryonated hen's eggs. Vaccine produced on birds is obviously contaminated with bacteria, some of which may be capable of producing disease. For this reason, egg-propagated vaccine is distinctly superior.

Fowl Virus vs. Pigeon Virus

There is a vast difference between fowl virus and pigeon virus. When one employs fowl virus, the method parallels that used ages ago to immunize humans against smallpox—actual exposure to the disease. So, when we vaccinate with fowl pox virus we actually give the chicken the disease. The effects produced differ from the natural disease in three respects. The lesion is smaller (therefore less severe); it is away from the head where it might cause suffocation, or a severe disease of the eye, and the effect comes before production starts and hence without loss of eggs. Vaccination of humans by the ancient method was not without its dangers. So it is with

Presented at NEPPCO Exposition, Atlantic City, N. J., October 1, 1940 fowl pox. Birds sometimes die outright, or, if the birds are already carriers of the blackhead parasite this may invade the tissues, and the bird dies of blackhead. If fowl pox is to be used, the flock must be healthy and should be from 1 to 3 months old, if a light breed; not more than 4 months for heavy breeds. Even then, there may be some loss. In any event, when fowl pox is used, the immunity is solid. The "stick" method of application is less apt to be attended by serious results than the feather follicle method, and, generally, an egg propagated virus produces less shock.

Pigeon Virus

Immunization with pigeon virus parallels the use of vaccine virus in humans. Thus, smallpox virus, passed through a series of calves, becomes changed so that when put back on humans it produces only a vaccination lesion and not smallpox. To be sure, the degree of immunity produced is not as strong as that provoked by an attack of smallpox, but at least it is sufficient for years.

In the same way, if fowl pox is adapted to pigeons and passed through them several times, the virus becomes changed and, when again placed on a fowl, never produces secondary lesions, will not spread, and causes no shock. As in vaccine virus, the immunity is not so solid. If it were not for this disadvantage we should have given up the use of fowl virus long ago. Pigeon virus is of particular value for vaccinating laying birds or flocks known to be carriers of blackhead.

Be all this as it may, pigeon virus deserves more credit than is given by poultrymen. That the virus has apparently failed to immunize is freely admitted, but the fault was largely due to the poultryman, partly to the manufacturer. Successful vaccination requires that the birds have well developed feather follicles, that the vaccine be applied properly and that the quantity of virus be adequate. Birds that are too young always have small follicles, and battery-reared birds are generally poorly feathered. This virus must always be applied by the follicle method and never by the "stick" method.

In applying the vaccine, the bristles of the brush must be directed against the open follicles and never in the opposite direction.

Manufacturers have been at fault because the amount of vaccine was not adequate for the dosage claimed. For 100 birds, there should be not less than 80 milligrams of dried virus and 4 c.c. of diluent. Most packages contain 20 or 40 milligrams of virus and 2 c.c of diluent for 100 birds. If such a vaccine is used, only 50 birds should be vaccinated. Poultrymen are warned against packages containing the recommended 4 c.c. of diluent, but only 40 milligrams of virus.

In general, the pox vaccines put out by laboratories are active, yet some have failed to give 100 per cent "takes." It appears that these vaccines of low potency result from the use of so called "second harvest" scabs. These scabs are largely masses of dried blood and not virus bearing tissue. It ought to be easy for poultrymen to identify such laboratories by their other activities.

Laryngotracheitis Vaccination

In discussing vaccination against laryngotracheitis, we are not confronted with two kinds of vaccine as in the case of pox. To be sure, there is the vaccine that is produced in the chicken and that produced in eggs. The egg-vaccine is superior and should be given greater preference here than in the case of pox.

Since no appreciable shock follows laryngotracheitis vaccination, we do not have to worry about whether the bird to be vaccinated is laying or not. Age of bird is a factor only to the extent that a very young chick has a small vent and would, therefore, be more difficult to vaccinate. Vaccination can be done at any age from 5 or 6 weeks on.

Beware of Impotent Vaccines

From this introduction, it would appear that there were no difficulties associated with laryngotracheitis vaccination. Actually, there is one very important point to be considered; this concerns potency of vaccine. Whereas most pox vaccines available are potent, it is unfortunate that many laryngotracheitis vaccines are not potent enough.

Almost the whole success of vaccination depends on potency of vaccine. A relatively impotent vaccine produces only a small percentage of "takes." Birds will be immunized, but, they begin to eliminate virus from the vent in a few days and this reaches the windpipes of non-immunized birds which promptly get the natural disease. This is know as a "break" and it usually becomes evident 10 to 12 days after the application of the vaccine. A good vaccine ought to give at least 95 per cent readable "takes" in susceptible birds. No difficulty whatever accompanies the use of such a vaccine. A good vaccine will produce this percentage of "takes" months after the expiration date.

General Cautions

There are other precautions, as follows:

1. Vaccinate all susceptibles at one time or else afford ample isolation for non-vaccinated birds.
2. Do not stretch dosage beyond a reasonable limit.
3. Use vaccine before the expiration date and keep in ice box until used.
4. Use vaccine within a relatively short time after it is mixed.

5. Don't spill vaccine or get it around the head of the bird.

6. Read or check birds on the fifth day so that you can re-vaccinate if necessary. If this is necessary, keep accurate records on date of vaccination, serial of vaccine used, dosage obtained, number vaccinated, percentage of "takes," time of "break," and total loss, so that an unscrupulous manufacturer will have difficulty in evading his responsibility.

It has recently come to our attention that attempts are being made to apply laryngotracheitis vaccine with a needle. In one method, the vaccine is apt to be deposited in a place where it can give no immunity. In both methods, the dosage is stretched beyond all recommendations.

Eggs With No Shells

A beginner in poultry bumps into many things that are not mentioned in the books and bulletins. Sometimes they cause him more or less worry. One of these is the fact that his pullets lay some of their eggs minus the usual hard shell. Sometimes these are in the nest, more often they are under the roosts. If the roosts are screened, he sees the shell-less eggs. If there is nothing to stop them, the pullets eat the eggs before the boss gets around in the morning. He doesn't see them, so he doesn't worry about them.

Every old-timer in the poultry game knows that these are not normal eggs, but their occasional appearance is a normal thing in any flock. At least they never reach epidemic proportions, and apparently do not indicate any abnormal condition in the flock, nor that anything is wrong with the feed.

It is not easy to find out just what goes on inside of the hen, so no one can be sure at the present state of our ignorance just why a hen should get in a hurry and drop the egg before it is finished. And we don't know if there is anything that might be done to stop it. It is quite possible that with all the hormone studies that are being made, someone may stumble on to the answer.

In the meantime, let's not worry about the soft-shelled eggs. The loss is not great enough to deserve any worry.

—L. E. Weaver, American Agriculturalist, Jan. 4, 1941.

ENGLISH poultrymen who buy hatching eggs are required to furnish the seller with a declaration in writing that eggs will be incubated, not eaten, according to Feathered World, London, England, poultry publication.

Encouraging Turkey Consumption

By HOWARD C. PIERCE

Great Atlantic and Pacific Tea Company

Condensed from American Egg and Poultry Review

ONE of the outstanding feats in agriculture during the past decade has been the doubling of turkey production and consumption. According to government estimates, the annual production for the country has increased from approximately 16 to 32 million head. As the average weight per bird has also increased, tonnage, therefore, has more than doubled. As each year's crop has been, until this season, well consumed before the succeeding crop is marketed we know that up to this year consumption has kept pace with production. This year, however, there are larger than normal freezer holdings – almost entirely heavy young toms.

That fall, 1940, holdings were mainly heavy young toms, and that frozen stocks of fancy young hens and light young toms were practically exhausted, denotes a significant change as regards consumption. In former years, young hens burdened the freezers and sold for less than young toms. The reverse was true last fall. There are two factors in the explanation for this changed situation. That there was a burdensome load of heavy young toms at this moment was due to the greatly increased numbers of young toms produced and the reluctance of the owners to take losses and to sell at prices that would move them in competition with other foods.

That there was an over-supply of young hens when the turkey crop was half of what it is today, and that there is no present over-supply, is due to a change in methods of retail distribution that has occurred during the past few years. Formerly, family sized turkeys were sold only at the Thanksgiving and Christmas holidays and then at relatively high retail prices compared to the wholesale values. There was practically no home consumption of turkeys outside the holiday season, resulting in not only a lack of variety in the consumers' diet, but also slow moving freezer stocks with their depressing price effects on the following year's crop.

Development of Year 'Round Sale

Credit for this increase in consumption is undoubtedly due to the merchandising activities of chain stores, whereby turkeys were retailed at reasonable mark-ups over wholesale costs at the holidays, and they

Talk presented at Turkey Grower's Short Course,
University of Missouri, Oct. 17, 1940

were advertised and sold at other times than the fall holidays. The first major out of season sale was made by the Great Atlantic & Pacific Tea Co. at Eastertime, 1928, in Newark, N. J. This was so successful that other sales were subsequently made at other holidays such as Washington's Birthday, Memorial Day, Fourth of July and Labor Day, as well as Easter. Now turkeys are on sale in thousands of chain and other markets, not only at holidays, but for weekly dinners also.

The success of this "all year 'round" retailing of turkeys depends upon the retailer's ability to offer the consumers turkeys under such inducements that they consider them more desirable than other foods that are continually competing for a place on the home table. There are several elements in the retailer's ability to appeal to purchasers. Briefly, some of these are: advertising to let the consumer know that fine quality turkeys may be purchased at attractive prices; large volumes of sales so that overhead expense rates may be reduced and permit retail prices at a smaller markup over costs; and the continual selling of high quality, cleanly dressed turkeys in order that the consumer may have continued satisfaction.

A woman comes into a market, sees a turkey and perhaps her mind works something like this: That turkey looks good! Will the family like it? Can I afford it? Can we eat all of it? If the answers to her mental questions are satisfactory, the turkey is purchased, and we say the turkey industry is looking up, as consumption is good.

The Industry's Responsibility

Now, what is necessary on the part of the producers, packers and retailers to answer these questions and cause the consumer to make a favorable decision and buy turkeys? There are, of course, many requirements, but perhaps we may group the most important under the heads of availability — which naturally requires no discussion — quality, price and weight of the individual bird.

Meeting these requirements requires the cooperation of all who are interested in the turkey industry. It goes without saying that if many consumers are to be interested, turkeys must be advertised and displayed to attract attention. This is generally done by the retailer. After attention is obtained, it can only be held by evidence of quality.

Quality is a broad term and is a responsibility of producers, packers and transporters, as well as distributors. Consumers generally do not stop to consider the various steps necessary to produce and bring quality turkeys to them. They judge only by the appearance in the retail market or by their confidence in their retailer. Naturally, the more pleasing the appearance, the greater the chances of making a sale. Let us consider for a moment what are some of the qualities that appeal to a consumer: They are plumpness, pleasing color, fresh appearance and clean picking. In addition to these visual characters, tenderness and fine flavor are expected.

The Producer's Responsibilities

Plumpness and color are the results of skillful production. They are the result of proper breeding to establish suitable conformation, proper feeding to provide the proper flesh and fat, and marketing at the right state of maturity to provide a well covered body, free from pin feathers and having, in addition to a uniform light cream color, that intangible asset called "bloom." Bloom is hard to define, but involves a soft translucent skin that indicates tempting tenderness.

Conformation, or the relation of the various parts of the body to the whole, is also very important. The long-legged, thin-bodied, narrow-breasted, long-necked turkey can no longer hope to pass the fanciest grade. Requirements today call for a compact bird with a broad, long, level, straight, full breast without any knob on or protrusion of the breast bone. The flesh is not only level with or slightly exceeds the depth of the breast bone but it is also carried well forward of the wish bone. The legs are short, plump and widely set; the neck and wings are proportionately short. The entire bird is symmetrical and has the appearance of carrying a large proportion of meat to bone. It has been aptly described as being streamlined.

This conformation is not impossible to obtain. In some instances, it has already been carried too far; resulting in a wide shallow breasted goose-type body with stubby, wide-set legs. Of course, this extreme should be avoided.

The Importance of Flavor

Clean picking — every feather and every pin feather off—is necessary if the consumer is to be satisfied in her selection of a turkey. Nobody likes to eat feathers! Many customers will not spend hours picking out pin feathers that should have been removed at the time of dressing, while the body was warm. She will buy something else. The purchase of turkeys may also be prevented by torn, cut or rubbed skins, even though the tears and cuts be sewn.

One of the factors in satisfactory marketing of turkeys most talked about among consumers and the least considered among producers is flavor. Flavor, tenderness and succulence or juicyness are the remembrances of a delightful turkey dinner, and the greatest of these is flavor. Flavor is a result of feeding and care in handling. The most widespread consumer complaint is lack of flavor — the most disastrous complaint is of bad flavors. Lack of flavor kills desire—bad flavors create aversion.

Foreign Flavors

A few years ago some turkey growers in the Northwest fed poor quality fish meals. These turkeys were sent to Eastern markets and hundreds of consumers were unable to enjoy their Thanksgiving dinner because the fishy flavor prevented their eating their turkey. Fortunately, prompt action by retailers, wholesalers, packers, feed dealers, federal and state agencies informed the producers, and corrections in feeding practices were made. A few complaints of fishiness are still being made and continual care must be taken in compounding rations to see that it may never again reach epidemic forms.

Another off-flavor complaint is sourness in the breast meat. It usually occurs in birds where feed has been left in the crop after dressing. This has fermented, and flavor of the breast meat is adversely affected; even one grain of corn may cause a gassy crop. Therefore, turkeys should be allowed only water on the day of slaughter. Non-fed turkeys also dress out with a superior color and bloom.

Cause of Bitterness

Bitterness in the hips and rear portion of the breast is still another off flavor. It may be caused by insufficient and slow cooling after dressing, causing the bird to become off conditioned or even green struck.

If the retail butcher or other person is careless in dressing a bird, the gall bladder may be ruptured and its flavor imparted to the meat. Thus, the prevention of bad flavors is a concern of the producers, feed manufacturers, packers, carriers and distributors.

The most general complaint—that of lack of flavor—is, I believe, worthy of the most serious attention on the part of growers and feed manufacturers. Continually increased efforts are being made to improve rations for the most efficient production of flesh and finish. Little if anything, however, has been done to provide that rich, nutty flavor associated with the wild or even the range turkey that has access to a wide variety of wild feeds, some of which impart favorable flavor characteristics to the finished bird. It is the remembrance of flavor that arouses a desire for another turkey dinner. Thus, for the sake of the all year 'round turkey business now being continuously developed, more attention should be paid to flavor through feeding.

It can be easily seen that any of these is a serious bar to the merchandising of turkeys and hurts the sale of good turkeys as well. Even though an off-flavored bird is replaced by the retailer the consumer's confidence in all turkeys is impaired. Thus the business of the growers and distributors of good turkeys is harmed. The greatest harm is done to producers as distributors generally carry other foods that may be sold instead of turkeys.

Proper Pricing Essential

Price—that balancer not only of supply and demand but also of personal desire and performance—is a weighty element in turkey marketing. A consumer may desire a turkey, but a comparatively high price may force the purchase of some lower

may be either no change or a rise in price. If the movement is slow, prices must be lowered to induce greater buying. Thus prices are bound to fluctuate according to the movement of stocks.

It has always been impossible for anyone to figure future prices. Estimates and guesses, based on experience and current reports, may be made, but the final decision is made by the ultimate consumers why buy turkeys one by one. Their decision is not made on the quantities available, but on their own needs and desires, their remembrances of flavor, their ability to purchase and price relationships of other foods.

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Proper Pricing Essential

Price—that balancer not only of supply and demand but also of personal desire and performance—is a weighty element in turkey marketing. A consumer may desire a turkey, but a comparatively high price may force the purchase of some lower priced food. Thus, as we say, price must be in line with competition. However, this is not the whole story—price must also be in line with the quantities of turkeys to be moved before the next crop arrives at the terminal markets. A few turkeys may be sold without much consideration being paid to competitive prices; many turkeys, on the other hand, must be sold relatively lower than prices on other commodities in order to induce their consumption.

What determines the prices at which a crop will move? The consumer ultimately controls the price. Sellers offer turkeys at a certain price and some customers buy and some do not. If the movement is satisfactory at a stated price, there may be either no change or a rise in price. If the movement is slow, prices must be lowered to induce greater buying. Thus prices are bound to fluctuate according to the movement of stocks.

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Size Preferences

"How large a turkey shall I buy?" is asked in many American homes. It is answered in accordance with many considerations, such as the number of people to be served, money available to make the purchase; whether or not they like cold turkey; size of the roaster and the size of the oven.

Without elaborating these factors, distribution of turkeys through retail markets shows that at the same price for young hens and young toms, over 50 per cent of consumers buy turkeys under 12 pounds in weight; 37 per cent 12 through 15 pounds; and 13 per cent 16 pounds and over. These are holiday figures—between holidays there is a still greater preponderance of small turkeys sold. The movement of heavy turkeys can be increased somewhat by lowering their prices per pound, but as small families can use only small turkeys, they will not purchase a whole large turkey even at drastic concessions in price. Heavy turkeys must therefore continue to find their outlets through hotel and restaurant channels until such times as home consumers may purchase portions of cut up large young toms.

The opinion has been expressed that consumers prefer young hens to young toms. However, the question is mainly one of size, and not of sex, with the added complication that light weight young toms are usually poorly finished because of immaturity. Hence, in those weights, common to both young hens and light young toms say from eleven to fourteen pounds, the young hens usually have a more pleasing appearance.

If the consumption of light weight turkeys continues to grow and the number of all turkeys produced continues to increase, the question of size will become increasingly important to turkey growers. Some are already growing smaller, quicker-maturing turkeys. Others feel that the lower cost of producing large birds will offset the price differentials due to sizes that are now developing.

Egg Processing Report

Eggs and egg albumen processed in miscellaneous food products establishments of the country in 1939 were valued at more than 28 millions of dollars according to figures from the Bureau of Census.

The largest item, $23,306,449, was the factory value of processed, canned, and frozen eggs. The total included 104,421,531 pounds valued at $14,245,881 and an additional amount of $9,060,568 for which quantity figures were not reported by the processors. This compares with the 1937 total of 134,510,351 pounds valued at $22,192,047, a gain of $1,114,402.

Whole, dehydrated and desiccated eggs totalled 8,838,714 pounds valued at $4,014,501. Comparable data for 1937 are not available.

Egg albumen processed amounted to 2,327,227 pounds, valued at $1,311,257. No comparable data for 1937 are available.

A BAG of sawdust soaked with disinfectant and used as a mat for wiping your feet before entering laying and brooding houses is an effective and economical way to cut down on the transmission of common poultry diseases, says Eggs, London, England, poultry publication. The bag should be placed on a platform of slats.

Smaller Turkeys

Untold amounts of publicity have been given to the theories of certain government poultry experts who have been exponents of the idea that the "market demands a smaller turkey." Western growers have never taken to this idea very much, for they know from personal experience that so long as they sell on a tonnage basis, the larger birds make them the most money. But in view of the widespread publicity given this idea, backed by the chain store surveys, it is more than interesting to note that the only turkeys that failed to clean up at Christmas time in the great western markets like San Francisco, were the small hens. The government report quoted small hens as "draggy."

There is another factor coming into this picture. Due to the untold millions being spent on defense, there is more money in circulation. The buying public has more to spend. Instead of buying a 10 lb. turkey, they purchase one weighing 12 to 15 lbs.

Still another item is the change in turkey type. It used to be that it was impossible to get a 20 pound tom in the modern oven. His frame was simply too big. But with the modern, compact, heavily fleshed bird, a 20 pound tom will go into a 16-inch roasting pan—and that pan will fit into a small apartment house oven.

All these factors have a bearing on the size of turkey the market demands. We already know that it is heavy toms that bring the best storage demands. What size bird you should raise, you should determine for yourself and your market, but don't get stampeded into raising small birds without first counting the cost.

—Norbest Turkey News, January, 1941.

First Feed for Chicks on Black Paper

While we make no claims as to being the originator, after several years of trial we find that lightweight black building paper makes quite an ideal place to put food for day-old chicks. After two days the small feeders (well filled, and the reels left off at first) will give the chicks a good start on their way. One of these same small feeders makes a very good place in which to put shells and grit.

—Gray Dewey, Nulaid News.

THE HEN is the most economical converter of raw material into food, says Veterinary Medicine. In this respect, she is twice as efficient as the dairy cow.

Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

Feb. 1—The days certainly do slip away. It won't be long until chick brooding time, and that is when the real work begins. It seems to me that this has been the hardest winter I have experienced in years. We have been almost at our wit's end much of the time trying to get the dropping boards cleaned. About three pens in each of the long houses were thawed enough to scrape easily today, and the two had to be ice hoed. But all houses were cleaned, and there is satisfaction in that accomplishment.

Feb. 2 — I guess the ground hog saw his shadow. But even if we do have six weeks more of winter, these old hens must think that spring is just around the corner. Today's production was the largest in quite some time.

Feb. 3—We are fixed pretty well for the week-end as far as feed is concerned. Yesterday my return load was corn and oats, and today the warehouse man brought out a load of mash and two kinds of cow feed.

I never have been able to understand why chicken men have to doctor the feed for almost every pen. And yet I do the same thing for what I think is a perfectly good reason. We feed soaked oats in some pens and dry oats in others. Some birds are fed milk on top of the mash and others get their corn soaked in milk. A chicken man is a rugged individualist when it comes to feeding.

Feb. 6—Walter Buss has steamed up his incubators, and is open for business at the same old stand. I take the market eggs to the auction and the hatching eggs over to Walter. Today we had a long talk, not about anything in particular, but just talked. So far he has no hatching record on my eggs as none have been set long enough. I am interested to know how they will hatch; maybe they won't hatch. "Toting all eggs in one basket" and "counting chicks before they hatch" are old proverbs to prove that this chicken business is rather precarious.

Feb. 7—I am beginning to think that probably there is something to this ground hog business. We are still carrying water to the north house. The pipe hasn't thawed yet in the north one, and I am afraid to turn the water in the east and west houses for fear the soil is frozen so deep across the road, that the pipes will freeze.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, February, 1941)

Feb. 9 — I almost turned a back-handspring this morning carrying two baskets of eggs. There is a bad snow drift on the drive, but instead of shoveling it off we have allowed it to become packed down, thaw a little and freeze a little. The consequence is that it is as slippery as a greased pig. I managed to get the eggs down on the road without falling on top of them, but there were a few cracked ones in each basket. As a matter of record, I sat down between the two baskets.

Feb. 10—It was just one of those days when everything seemed to drag. I haven't been able to understand why it is, but there are days that go that way. We simply couldn't get started. Donnie was home from school and we had planned to really knock them off. But there is no use to cry over spilt milk, or cracked eggs as far as that is concerned. I'll get the eggs packed sometime between now and next Tuesday.

Feb. 13—I always like to have a full load of eggs on the truck, but, due to the cold weather, my volume of eggs isn't comparable to the capacity of the truck. That happened today when I had a mixed load of eggs, junk for the city dump, and the cider barrel for the Melrose folks. It's odd, but the nearest dump for tin cans, bottles, and old wire fencing — anything that won't burn at home — is just outside the city limits. So, if that is where they want the junk dumped that is where I dump the junk.

Feb. 14 — And speaking of things that have seen their day, I put a couple of hens in the incinerator that looked and felt as if they were well past their three score and ten allotment of the good things of life. If I were to be in the condition that they were I think I would want to be incinerated too. Just about all they could say was that they were in the land of the living. The only sign of life was a slight movement of the head when I picked them up from the floor.

Feb. 16—The work for the week is in as good shape as weather permits. The north houses will be cleaned tomorrow if it doesn't rain, snow, sleet, or hail. What I am trying to do is to get all the work caught up here at home to such an extent that if something unforseen should come up Monday regarding the poultry school, I would have some extra time. Ralph Treat has his hands full with his regular work too, so co-operation is the watch word.

Feb. 17 – The water pipe in the north house is still frozen. This frozen-under-the-concrete-floor business is bad. There is just no telling when the pipe will thaw, and if it is broken it will amount to almost a catastrophe to have to tear up the floor, especially while the birds are in the house.

Feb. 21—Harold and I have been debating for several days as to the best method of procedure in getting the ear corn out of the snow fence corn crib. The crib was topped off with bundles of fodder, which made a waterproof roof. If we remove the roof, we might get caught in a heavy snow or a rain. If we ease the corn out from under, the roof will cave in on top of the corn.

I am sure that the corn is carrying more moisture now than it was several months ago, because of recent damp weather. With all probability, our best bet will be to sack the entire crib and put the bags in the block house garage and feed rooms which are heated. Then we can shell it at our leisure during bad weather.

Feb. 22 – It is lambing time in Ohio which, I suppose, is comparable to springtime in the Rockies. "Dolly," Donnie's registered Shropshire, has twin daughters. She and two other prospective mothers are quartered in a temporary maternity hospital in the storage building. Time flies because it seems like only yesterday that I was watching the sheep. And in just a few weeks I am going to be watching chicks.

Feb. 24—Harold and Donnie had the idea that they could remove one of the boards in the floor of the temporary snow fence corn crib and remove the corn from the bottom. It was a fine idea and worked to perfection. The only drawback was that the corn fodder top collapsed with the butt ends of the bundles sticking straight up in the air. If it should happen to rain between now and Monday—well, here's hoping it doesn't. Fred Houser is coming over Monday morning to give us a lift. The corn will be stored inside for future shelling. It has been a full week, but everything has been rounded up in good shape, considering the weather.

Feb. 29—I believe the ground hog was right. Spring apparently isn't just around the corner. But these old hens are gaining in production just the same, and the price of eggs isn't what it used to be. The bottom has gone out for this year, or at least until late summer. A rather peculiar incident happened tonight while candling eggs. There were only two blood spot eggs in today's gathering. It so happened that I candled them both at the same time—one—two—just like that. In all probability, it won't happen again in a lifetime.

Catching Chutes for Turkeys

Reprinted from Norbest Turkey News

VISITING the terminal markets and killing plants, watching the turkeys as they come in, one cannot but be impressed by the number of absolutely unnecessary bruises and abrasions that characterize so many flocks. Some of these, of course, occur at the plants, but the majority happen before the birds ever leave their home range.

It seems a bit strange that a grower will provide every facility for properly brooding the turkeys, for feeding them, and yet, when it comes to catching them for the final kill, his only facilities are some catching hooks and a portable fence.

The fence may be all right. In fact, it is necessary. But on scores of our better ranches a turkey hook is never allowed on the place. It takes less than half a day's time to make a catching chute which will save more than its cost on a single flock.

Most of the catching chutes are quite simple. Some of them are simply a box, with no bottom, about 12 feet by 3 feet, and about 30 inches high. It has a solid top with slats on one side and burlap bags, hanging to within a couple of inches of the floor, on the other. The ends are generally equipped with gates. At one end is a set of wings, covered over so the birds do not fly out when being forced into the chute.

The birds are penned, as many as will comfortably fill the chute, cut out from the flock, and driven into the chute. The man who is catching the birds simply reaches under the burlap bag and takes the turkeys out. If he is careful, there is no struggle, no bruising, and no flapping—more prime birds.

On many farms this chute is set on legs, so the bottom is about the same level as a truck body and a sloping approach is built between the wings. The birds are driven up the incline, just as cattle are loaded, and into the chute. Careful operators cover the chute floor with a few inches of straw and stretch burlap over this, so when the birds are picked up by the legs, their breasts will not bump on the hard wooden chute floor. A good many of the more modern chutes are equipped with wheels and can be hitched on to the back of the truck and taken anywhere about the farm.

These portable chutes are always handy. You can use them for vaccination, for blood testing, for breeder selection and for live grading, or any other time when you must handle the birds. They should be a part of the equipment of every turkey ranch.

Just a word about handling tur-

Northwestern Turkey Growers Association, Salt Lake City, Utah
(Norbest Turkey News, November, 1940)

keys. We know this may sound a bit over-drawn, but turkeys, properly managed and properly caught and handled, seldom get a chance to struggle or flap their wings. The turkey has powerful wings, the tips bruise easily, and it is just poor management that makes the operation of catching a bird a struggle.

In the first place, the birds, raised the way we now raise turkeys, should be reasonably tame. They will be if your herder is on to his job. Then the man catching the birds must know how to handle them. This is an art in itself. There is a real trick to it. The grower who grabs up heavy birds by one leg and jerks them around serves himself a dish of cripples, lame birds, and bruised bodies.

At one of the recent shows, we watched two judges working a class of heavy hens from the table. One man was handling his birds as they should be, and in examining the class of some 25 hens he did not have a bird struggle with him. The other judge grabbed his hens from the holders and jerked them from the table. Well over half the birds he handled fluttered and floundered before they gave him a chance to go over them. Pay a little attention to how you handle your own birds, throw those hooks on the junk pile and, you'll get a far higher percentage of prime birds on the grading table.

Raise Good Chicks

I was in a hatchery the other day when a man came in to order some chicks. "Last year," he said, "I looked at the price. This year I'm going to look at the chicks. I've learned my lesson."

He told me his experience.

"The chicks were only 6 cents," he said. "And I figured if I got those I could get 500. If I paid 9 or 10 cents, I couldn't get over 300 or 350. Of course, the way it turned out, I lost about 150. So those I had left actually cost me as much as good ones would have. And they were still cheap chicks—weren't worth a darn all year long."

Chicks that will live and grow the way you want them to can't be bought on a bargain counter. And no chicks are a bargain unless the pullets have what it takes to live and lay a profitable number of eggs.

Frank Priebe's Weekly Letter to Poultry Raisers, Jan. 9, 1941.

WHEN a setting quail hen was killed accidentally on a North Carolina farm, the cockerel immediately took over her duties as keeper of the nest. There were 22 eggs in it, says the newspaper report.

Young Breeders Needed

By W. A. SEIDEL

Condensed from Poultry Item

A SHORT time ago I visited a West Texas sheep show and sale with the intention of buying a ram. I soon found that the sheep breeders of this state take their breeding work quite seriously.

I finally bought a ram from a lad who did not seem to be over 25 years old. Yet he gave every indication of being a thoroughly experienced sheep man. In fact, he was chosen one of a committee of judges who selected sheep to be classified as stud animals. I learned that he operates a ranch of 27,000 acres. His father is also a large sheep breeder, and uncles and other relatives operate over an area that would cover several large Texas counties. Sheep breeding seems to be a tradition with these people, and one could plainly see the effect of such a heritage on this thoroughly experienced young sheep man. I have noticed the same thing among the many breeders of fine Hereford cattle in Texas. In many cases, where a father has made an outstanding record as a breeder, you will find one or more sons following right in his footsteps.

As I drove home, the thought struck me that very few of the poultrymen I know who are selling breeding chickens had a father or any other relative in the business or themselves grew up on a poultry farm. In many cases they made their "pile" in some other business, then decided that the chicken business would be a nice proposition for spending the rest of their lives on a farm. So they go out and buy a farm, put up a lot of fine buildings, stock them with chickens and incubators, buy a book or two on genetics, and they are breeders!

What I would like to see is more young people starting out in the chicken business with a view to making the breeding of chickens their life work. It takes a young fellow time to become a breeder, because I do not think he can correctly call himself a breeder until he has been ground up in the mill of experience for 15 to 20 years.

No doubt most people will feel that the best place for a young man to learn to become a breeder is to take a course in some agricultural college. That route has some very weak points, because in my old-fashioned view, a man should be a poultryman before he becomes a breeder, and the only place to be-

The Item Publishing Company, Sellersville, Pa.
(Poultry Item, November, 1940)

come a poultryman is on a poultry farm. I do not by any means contend that a college course is not desirable, but it is only a part of the training, certainly, not all of it.

The second weak point in this route is that it would be best for a young man to learn breeding from a breeder, and I do not know of any breeders who teach in colleges. There are plenty of scientists in the colleges, but these teachers have their hands full with the job of teaching, and few of them have ever owned chicken farms on which they could gain breeding experience by developing worth-while strains of chickens. The college teachers can only teach what has been written in books, and that again is only part of the training a breeder needs.

The purpose of this article, therefore, is to add a little practical knowledge to the teachings a college student will get from his books and lectures, and particularly to demonstrate that successful breeding of livestock is an exceedingly difficult job. The tendency of scientists is to minimize the difficulty of the work, and to indicate that breeding can be done by a set of rules or short cuts that always work. There are no such rules, except perhaps the rule that the breeder who knows most about his chickens (through personal observation) has the best chance of putting together a mating that will "click" and produce the results he is striving for.

The work will be very interesting to the right man, and will pay richly in the satisfaction of creating something a little better than what has been known before. But the job requires a great deal more than an easy chair and a set of records and figures.

In the sheep show that I mentioned above, I heard a great deal of discussion about the breeding tendencies of this or that animal, and the prepotency of an animal in one point, and its weakness in another. Then in the evening I listened to a chap who was a writer for a national magazine, and he told me importantly how he "understood all about the principles of breeding and the science of genetics" but it did not take me long to find that all of his breeding ability, if such it could be called, was on paper.

Judging Value of Breeders

In all lines of livestock breeding, and with chickens, too, a sire is given credit for a bunch of fine daughters, not the dam. In other words, a sire is usually judged by his daughters, and a dam by her sons. The experienced breeder is not at all bothered by the fact that 300-egg hens do not necessarily produce 300-egg daughters because he knows that if his 300-egg hen is a strong individual and a good reproducer, her sons will very likely give him the blood that is prepotent for continued generations of heavy laying offspring in the future.

Let's take an example in breeding work that is very much in the limelight with poultrymen these days—the question of livability. Say we have two birds that, according to the records, have fine livability in their makeup. Now these two birds are mated, and then what? As likely as not, their progeny does not show the qualities that were expected, at least not in any degree of uniformity. In the old days, the novice breeder would go to a poultry show, buy the champion cock and the champion hen, take them home and mate them, and at the end of the season find that he hadn't raised any champions. The man who produced those champions would probably show up the next year with some more champions, even though he had sold his champions of the year before, and could not use them for breeding.

Making Them "Mesh"

The fact is that the breeder who produced those winners "knew his birds." He knew that perfect birds do not grow, so he studied the defects in his birds, and mated them so that the defect in one sex would correct the defect in the other.

That brings out a weak point in those breeders who think they need only to perfect two birds in a certain quality, then mate them, and they will have just what they want. But it is likely that those two birds, while they may seem to be perfect in the qualities desired, have been brought to that stage of perfection by different groups of units or whatever else it is that governs their makeup. We can take a gear wheel that is 9 inches in diameter, and that has, let us say, 50 teeth, and if we try to mesh those teeth with those on another gear of exactly the same size and made in the same factory of the same material, but that has 45 teeth, they won't mesh properly. And so I would advise my young aspirant to a position as breeder, not to look too long for these "perfect" birds that he can mate to produce perfect offspring. It will save a lot of time to just understand in the beginning that perfect birds do not exist, so that it will always be necessary to work with imperfect birds.

You Must Have Good Balance

Again taking up this question of livability, it should be understood that it is no great job to produce in the course of four or five years, a flock that has excellent livability. The catch is that the public does not accept stock that is good in only one quality. I have often seen examples of breeding for only one quality in a chicken, and they have always produced chickens that I say are "lopsided." They are extra good in one or two points, and very poor in many other points. The great job in breeding is to produce a bird that has as many good qualities as possible, and as few poor qualities as possible. And that is a very great deal harder job than to produce a bird that merely has livability.

What good will it do an R .O. P. breeder, for instance, if his birds have high livability, but have side sprigs on their combs, or feathers on their shanks? Or if the hens are too small and lay small eggs, or are poor layers or lay badly tinted eggs? The R. O. P. inspector will simply throw them out and mark them culls.

My experience has been that my customers will not accept a lopsided chicken. If I send a poultryman a little short-legged cockerel, with a poor comb or, possibly, a brassy back, he will use nothing slower than air mail to ask me what kind of "improvement blood" do I think I sent him. It won't do me any good to tell him what wonderful records (on paper) are around and behind that cockerel and what wonderful results he should therefore produce. He must be a fine looking bird or the customer won't have him. His dam and his daughters must lay eggs that average at least 2 ounces each in the year, and they must be pure white, or the R. O. P. inspector won't have him. And so, before you become too greatly enthused about any one quality that a breeder claims for his stock, better ask him about the other qualities too. In commercial egg farming, there is still nothing that will take the place of high average production of top grade eggs to make a poultryman prosperous.

How to Get Good Livability

It has been suggested that livability in a strain can be attained by raising the chicks in filthy and crowded quarters, so that most of them will die of disease, and those left would automatically be about to "take" it. This is supposed to be according to nature's law of the survival of the fittest.

My observation has been that there is very little filth and not much disease in nature. Those unhappy conditions are usually found only where man has dropped too many monkey wrenches into nature's machine. Wild birds are usually killed off by their natural enemies, and by unfavorable climatic conditions. However, it is quite likely that this method would produce a certain amount of resistance in the stock, at least toward the type of filth and disease existing on the plant of this particular poultryman. On the other hand, it would surely produce such lopsided chickens as I have mentioned before. It is quite likely that the breeder would lose important breed characteristics under such a program, and it is quite certain that he would lose in production, egg size, and egg color.

All this talk about hens automatically being top-speed layers merely because the strain has fine

livability, is pure nonsense. High production in chickens has been produced only by constant effort of man, and as soon as he leaves that factor to concentrate on something else, he will lose production. Fighting game chickens that the Mexicans breed around here probably have the best livability of any chickens on earth (unless a cock is so unfortunate as to get stuck with a gaff in the wrong place). But I never heard of anybody winning an egg laying test with hens of that breed.

Besides learning that breeding chickens are never perfect, the breeder must know that he is forever up against the law of compensation, which he cannot dodge. If he works for improvement in one direction, he must be prepared to give at least some ground in another direction.

Plant breeders have developed flowers that are marvelously beautiful, but could such plants stand up in a clump of weeds along the road? No, they have carefully prepared and fertilized soil, are sprayed or dusted, and are carefully spaced to protect them from encroachment from other plants or weeds. We have fruit trees that produce fruit much larger and more delicious than any found in nature, but the trees that produce those fruits must be carefully guarded from insects, weeds and crowding, or they will not survive. The wild tree can survive under severe conditions, but its fruit is small and sour. Those are just two examples of the law of compensation. We can get much finer flowers and fruits, but we lose something in the hardiness of the plants.

If we must have birds that are entirely free of standard disqualifications, that lay only eggs of rather large size, that always lay eggs that are pure white (or brown), and that must have a half dozen other features that are of no economic value, we are going to have to give up some other features that we would like to have. We will never be able to eat our cake and have it too.

As for me, I consider it a matter of intelligent management to recognize the wonderful piece of mechanism that a finely-bred, high-speed layer is, and then give her a decent environment in which to perform her arduous task of helping to keep the egg basket filled.

MRS. EMERSON LONGNECKER, Paris, Missouri, noticed one of her roosters flopping about in convulsions. Desiring to put the creature out of his misery, she killed it, performed an autopsy, and here's what it disclosed: The rooster had swallowed a match which, when passing through the gizzard, had been lighted therein by the grit. —Cappers Farmer, February, 1941.

Poultry Dressing and Packing In the United States, 1914 to 1939

Bureau of Census News Release

PRODUCTS of the 765 establishments in the United States engaged in the poultry dressing and packing (wholesale) industry in 1939 reached a value of $138,318,081, the largest annual dollar volume ever recorded in any census, according to a preliminary report of the 1939 Census of Manufactures made public by Director William Lane Austin of the Bureau of the Census. This represents an increase of 30.7 per cent over the production of 533 establishments in 1937, which reported products valued at $105,841,342. The 1939 production value exceeded by more than eight million dollars the total reported in 1929, the second largest census year in the industry, $130,161,230. However, while the 1939 report covers all establishments whose individual annual production was worth $5,000 or more, the 1929 report embraced only those establishments whose products for the year were valued at $20,000 or more. Thus, obviously, the 1939 and 1929 totals are not exactly comparable.

In addition to the total value of products reported for the poultry dressing and packing industry, it is noted that poultry products, etc., reported as secondary products of other industries in 1939 were valued at $3,494,002. At the same time, $11,178,750 included in the total for the poultry dressing and packing industry represents the value of products not classified in the industry — canned or frozen eggs, dried eggs, butter, cheese. Merchandising, goods bought and sold without processing, represented a value of $16,506,067.

Poultry and poultry products, dressed and packed, were valued at $111,914,625. This figure includes the sum of $572,710 representing the value of rabbits, hares, etc., dressed and packed in the industry.

Under the classification of dressed and packed poultry, the year's output was reported at a total of 589,448,801 pounds valued at $108,627,710. This total included 427,400,423 pounds of chickens valued at $76,469,999; turkeys, 112,316,050 pounds, $23,069,333; ducks, 9,829,314 pounds, $1,583,373; geese, 6,067,011 pounds, $949,027; other poultry, 1,831,086 pounds, $441,894, and poultry not reported by kind, 32,004,917 pounds, $6,114,084.

Canned poultry amounted to a total of 6,004,556 pounds valued at $2,486,162 of which fowl canned

whole amounted to 2,047,303 pounds valued at $765,616 and parts of fowl canned amounted to 3,957,253 pounds valued at $1,720,546.

Potted and deviled chicken products in the industry amounted to 182,190 pounds valued at $46,300.

Chicken feathers sold amounted to 2,181,022 pounds valued at $63,619 and other feathers sold amounted to 561,965 pounds valued at $118,124.

Total value of products reported from 1914 onward in the various Censuses of Manufacturers is given as:

1939–$138,318,081
1937–$105,841,342
1935–$ 92,944,038
1933–$ 66,156,977
1931–$ 97,560,080
1929–$130,161,230
1925–$ 45,454,139
1921–$ 34,716,913
1919–$ 41,705,079
1914–$ 12,916,608

The figures from 1929 through 1939 represent a value of products of the poultry dressing and packing industry, including canned poultry products. For prior years, the values reported are for poultry killing and dressing, no data being available on canned poultry or canned poultry products.

Machine Saves Infertile Eggs

A new "egg-saver" machine that makes possible the removal of infertile eggs from their hatches at 15 to 20 hours of incubation and their sale at top quality prices to consumers has been developed at Iowa State College.

Dr. George F. Stewart, poultry specialist, who developed the machine, says it is adapted for use in both large and small hatcheries, as units can be added.

The "egg-saver" consists of two separate units. One is a pre-incubation chamber in which eggs are carried at normal incubator temperatures for the 15 to 20-hour periods; the second is a super-candler which enables the picking out of infertile eggs at this early stage. The incubation chamber prevents the loss of carbon dioxide from the eggs, thus preserving their quality so efficiently that the average market grade of the eggs recovered is U. S. extra.

Three distinct savings for the operator are claimed through use of the machine: Infertile eggs are recovered and sold. Space is saved because eggs that will not hatch are not kept, and there is the possibility of getting an earlier check on hatching-flock fertility. Tests of the machine show that the total cost of the pre-incubation and candling is less than half of the return obtained from the sale of the recovered infertile eggs.

—Produce Packer, Feb. 1, 1941.

POULTRY RESEARCH

Sexual Maturity and Turkey Egg Production

By selection for early and late maturity, two strains of Bronze turkeys that differed significantly in sexual maturity and in egg production were established at the California Agricultural Experiment Station, reports V. S. Asmundson, in Poultry Science (Vol. 20, No. 1). Earlier maturing birds laid more eggs than later maturing birds, both early in the season and throughout the year.

When two strains that differed in egg weight were crossed, the progeny laid eggs that were intermediate.

Late hatched birds started laying when younger than early hatched birds, but date of hatch had little influence on date of first egg in birds hatched in a period of eight weeks or less before the first of May. Birds hatched late in June started to lay later than those hatched in April or May.

Progeny of early male by late females were significantly earlier maturing than progeny of late male by early females.

It is suggested that chickens and turkeys differ in the way in which they respond to artificial lights. Turkeys will start to lay when younger, and will occasionally lay in the autumn, when lights are used. Chickens tend to start laying at a given age, and are apparently not affected to any great extent by external environmental influences.

Genetic Aspects of Egg Weight

In inbreeding experiments carried on by N. F. Waters at the Iowa Agricultural Experiment Station, data gathered suggested that egg weight is a highly hereditary trait and that the weight of an egg is influenced by genes dominant for large egg weight. The weight of eggs produced by a dam is definitely associated with those of her daughters, both for large eggs and small eggs.

The data fail to show a significant association between the mean egg weights of the sires' dams and their daughters, or between the sires' full sisters and their daughters, thus indicating that both measurements are of little value in estimating the mean egg weight of a male's daughters. It is concluded, though questionably, that the sire has but little influence on the weight of eggs his daughters lay.

The possibility exists that the maternal influence for the egg-weight character in the daughters is far more important than that of the paternal parent, according to the report in Poultry Science (Vol. 20, No. 1).

Chick Growth Factor in Polished Rice

Experiments by E. L. R. Stokstad, P. D. V. Manning, and R. E. Rogers in the research laboratories of Golden State Company, Ltd., indicate that a simplified diet containing all the known vitamins is inadequate for satisfactory chick growth. The addition of polished rice or other cereal products, liver, or kidney, promotes normal growth and decreases mortality resulting from the feeding of diets lacking the factor in question, according to the report in Poultry Science (Vol. 19, No. 6).

Cottonseed Oil and Hatchability

The addition of crude cottonseed oil to a satisfactory ration for laying hens markedly reduced the hatchability of the eggs produced, in tests conducted by R. C. Ringrose, C. L. Morgan, and E. J. Lease of the South Carolina Agricultural Experiment Station. Cottonseed oil at a level of 3.6 per cent of the ration reduced hatchability from approximately 80 per cent to less than 30 per cent.

Wesson oil and crude soybean oil at a level of 3.6 per cent and crude peanut oil at a level of 7 per cent did not affect hatchability.

Neither heating the cottonseed oil for two hours nor oxidation destroyed the factor or factors responsible for the drop in hatchability. Rancidity of the oil was not a factor in affecting hatchability. Refining the crude oil by filtering and treating with alkali did not destroy the factor or factors.

Hydrogenation of both the filtered crude cottonseed oil and the refined oil completely destroyed the active factor, but the addition of vitamins A, D, and E, or dried pork liver to the rations containing crude cottonseed oil did not improve hatchability, according to the report in Poultry Science (Vol. 20, No. 1).

Charcoal in Chick Rations

Tests recently reported from the California Agricultural Experiment Station indicate that charcoal may have certain unfavorable effects when used in chick rations. It is stated that a ration which was adequate for normal growth and health was rendered, in effect, deficient in vitamins A, G, K, and the gizzard factor by the addition of 2 per cent of an absorbing charcoal. It is concluded that there is a possibility of similar effects in practical rations supplemented with charcoal if the mash does not contain more than adequate levels of these factors, or if the mash consumption is reduced by heavy grain feeding, or if the chicks have unlimited access to charcoal. The absorbing power of charcoal in poultry rations is, therefore, not an entirely beneficial property. (Proc. Soc. Exp. Biol. & Med., Vol. 45, pp. 303-305).

—L. E. Card, Poultry Tribune, February, 1941.

Pellets vs. Loose Mash for Laying Hens

When an all-mash diet was divided, one part pelleted and the other left in the loose mash form, and fed to two lots of broilers in each of two tests, the pelleted mash gave greater egg production, greater average live weights, and lower feed cost per dozen eggs, report R. B. Morgan and B. W. Heywang, U. S. D. A. Bureau of Animal Industry in Poultry Science (Vol. 20, No. 1).

There was little difference in mortality, hatchability, or fertility between eggs of the two groups.

Value of Animal By-Product Protein Concentrates

A high free fatty acid content of the fat in animal protein concentrates is not a true factor for the evaluation of the nutritive worth of such products when used in well-balanced rations for poultry feeding, report R. E. Gray and H. E. Robinson of the Swift and Company research laboratories.

High rancidity of the fat in animal protein concentrates does not necessarily greatly affect the nutritive value of such products when used at a 10 to 15 per cent level in poultry feeds, according to the conclusions given in Poultry Science (Vol. 20, No. 1).

Riboflavin Content of Poultry Feedstuffs

Dried buttermilk samples averaged 72 per cent higher in riboflavin content than skimmilk, and dried whey had from 60 to 144 per cent as much riboflavin as skimmilk in tests conducted by T. G. Culton and H. R. Bird at the University of Maryland. There was no significant difference in riboflavin content between sweet cream dried buttermilk and sour cream dried buttermilk, according to the report in Poultry Science (Vol. 20, No. 1).

Samples of dried casein whey and dried skimmilk, prepared in the same plant at the same time and from the same milk source, showed no significant difference in riboflavin content. Neither was there any significant difference in riboflavin contained between summer-prepared dried skimmilk and winter-prepared dried skimmilk or between summer-prepared dried buttermilk or winter-prepared dried buttermilk.

Urea Nitrogen Not Utilized by Chicks

In the search for synthetic substitutes for a portion of the protein concentrate in animal rations, considerable experimental work has been done with ruminants both here and abroad, but very little has been done with poultry. One German report concludes that urea is not utilized by laying hens, and now comes a report from the Nebraska Agricultural Experiment Station on its use in rations for young chicks. (Nebraska Agricultural Experiment Station, Research Bulletin 120).

The protein concentrate in the chick ration consisted of equal parts by weight of meat meal, fish meal, and soybean meal. In the experimental ration, one-third of the protein concentrate was replaced by a mixture of starch and urea in the proportion of 4.08 to 0.92. Cornish-Leghorn crossbred chicks were used and they were fed to six weeks of age.

The conclusions reached were that the urea-fed lot gained at a slower rate than the controls; the urea-fed chicks retained 12 per cent less of the total nitrogen consumed; the gain per gram of non-urea nitrogen fed was slightly greater in the urea-fed lot; urea nitrogen was not utilized by chicks up to six weeks of age.

—L. E. Card, Poultry Tribune, February, 1941.

Dirty Eggs Reduce Profits

What share of the $8,000,000 national loss from dirty eggs do you pay each year? How much time do you spend in cleaning dirty eggs? Over 99 per cent of eggs are clean when laid. While you cannot keep them all clean, you can save yourself many hours of useless labor in the egg room by an occasional hour of cleaning in the pens.

Keep the layers confined. Avoid wide flat surfaces. Cover the roosts and dropping boards with heavy, two-inch wire. Provide one nest for each four or five birds. Keep at least two or more inches of nesting material in the nests. Shavings, oat-hulls, sawdust, excelsior, cut hay or straw make good material. Keep broody hens out of the nests, both day and night.

—Edward S. Walford, Poultry Item, February, 1941.

HUMOROUS experiences with customers not too well acquainted with the facts are common in any business, but this one takes the 100-layer cake. F. R. Beaudette, New Jersey Experiment Station, tells the incident. He claims it really occurred in a New Jersey hatchery. The customer complained that he vaccinated all his birds but that there wasn't one "take." "That's not all," he charged. "One of the bottles you sold me was so dried up that I had to throw it away. The only one I could use was the one marked 'Glycerine'."

—Poultry Supply Dealer, Jan. 1941.

Too Much Heat For Chicks?

Examine a newly hatched chick and you'll find its entire body covered with down to the depth of nearly a quarter of an inch—and this down is comparable to the famous eider-down the Eskimos line their garments with to ward off the intense arctic cold. It doesn't seem right nor reasonable to subject this chick—bountifully endowed as it is by nature to withstand cold—to a 90 to 100 degree temperature during the first weeks of its life. If we take a lesson from the old mother hen with her brood of chicks, we find that the only time they have any heat at all is during the time she hovers them for a few moments to give them a chance to warm up. Aside from these brief intervals they are on the cold, damp ground of spring, with no heat of any sort.

And those are exactly the conditions we should have in our brooder houses—a cool room with high humidity (plenty of moisture), with enough heat under the hover so the chicks can dodge under, get warm quickly; then go back to their business of eating, exercising and growing.

Chicks should be gotten out doors, regardless almost of weather, by the time they are a week old. They should have access to a small pen or sun porch on the south side of the brooder house, and at frequent intervals this pen should be widened, until by the time they are a few weeks old they can range at will.

There is much opinion, that cannabilism and feather pulling are primarily caused by too much heat, too close confinement, and too dry air in the brooder house. When these conditions are present the chicks become nervous and irritable and are very apt to develop vicious habits.

When chicks pile and crowd into the corners of the brooder house, away from the hover, that's a sure sign they are getting too much heat. Just try letting your brooder house cool off in the late afternoon, fix your fire quite late in the evening, and you'll find every chick will be under the hover and none in the corners.

—O. R. Ernst, Leghorn World, February, 1941.

TURKEY eggs produced too early or too late for the regular hatching season are frozen by Mrs. R. D. Gleason, Nicollet county, Minnesota, and stored in a refrigerated locker for use in cooking.

—Cappers Farmer, February, 1941.

VIEWS OF THE EDITORS

The Poultry Industry . . .
Where is it Going?

So far this century, the poultry industry has led all other farm enterprises. One sometimes wonders—perhaps dreams—of what is going to be the next change.

The mechanization of the industry, together with science applied, has changed the whole complex of the business and may lead to very far-reaching economic changes.

The mammoth incubator has made almost unlimited volume a fact. Many agricultural lessons have come out of this machine and the application of scientific facts are not as yet all understood in detail.

Did you ever stop to think just how far-reaching in the growing crops and general animal husbandry is the relationship of temperature to moisture; to air movement? The incubator operator soon learns that if the temperature and humidity are not in harmony, the net result is a poor hatch, and it may be unsealed, mushy chicks.

Out in the farm fields, we see crops going down or almost flat owing to unbalanced nutrition and out-of-line environment, such as too much rain, too much heat and, perhaps, a high wind. Nature once in a while puts on a demonstration that we are not as clever as we thought we were.

We now can have chicks in volume, provided the eggs that are set are fertile and the shell contents are in nature's relationship. What a battle—and it is not yet finished—has been going on with the detailed chemistry of the egg; not only proteins, fats, etc., but the vitamins and minerals; but worse, their balance to one another and the entire egg as a whole.

Every movement in the hatching and rearing of the chicks has been a study in science and the application of the facts. These in turn have created a marketing situation, where grade as to size, color, flavor, etc., has had to be considered.

Today we have volume the year 'round of excellent dressed poultry and A-1 eggs. What more do you want? But there are such things as price and competition.

We see around us what might be called the industrial poultry farms with the surrounding community working in harmony to the financial advantage of all: In feeds and feeding, housing, breeding and marketing—in all phases of poultry farm management—costs are reduced and profits increased. One man takes care of more than 2,000 hens and one farm gets more than 1,000 dozens of eggs laid daily in the season of off-production.

Can the poultry industry challenge all other farm products for the nation's health and maintenance at less cost?

—W. R. Graham, Canadian Poultry Review, January, 1941.

Chicken Is Popular Meat

Public polls show that chicken and turkey dinners are the most popular. Here again, health is twin with enjoyment. Our scientifically balanced feeds make mineral-extra and vitamin-plus poultry and turkey meat. Often our gustatory approach to chicken and turkey meat has been wrong. We gorge ourselves on a holiday and wait for another feast day to repeat the process of stuffing the birds and ourselves. For health and enjoyment, eat them oftener. Prices are low and quality is high. Consumption of poultry meats could be a third higher.

—R. Conolly, Michigan Farmer, Jan. 4, 1941.

The Producer is "In" on Merchandising

Present day merchandising, as it is carried on by countless co-ops, involves not only the management and sales departments of the organizations, but, in many instances, the members themselves.

In the Washington Egg and Poultry Association, for example, it is the members who do most of the groundwork for the sales promotion in New York of the new Sunrise brand eggs. These eggs are so produced and handled on the farm that they reach the distant consumer in very nearly the status quo of a nest-fresh egg.

The Sunrise egg program is predicated on three points. The first of these is a uniform, controlled ration. Producers enrolled in the program agree to feed, in the prescribed manner, the ration provided by their own association. Secondly, the eggs are gathered frequently and cooled promptly to expel the animal heat. Thirdly—and this is said to be the most important and radical departure from ordinary egg handling—the eggs are shell treated on the farm by the producer soon after they are laid.

Shell treating on the farm within a few hours after laying is said to mark a sharp contrast in results as compared with shell treating in the packing plant. Production and marketing of this brand on a trial basis has been under way for over a year. Activity on a broad scale has now been reached—and obviously it is the producers who are the key-men in the program.

—News for Farmer Cooperatives, January, 1941.

Give Madam Hen a Break

An egg and poultry marketing survey made recently in 10 West Central Minnesota counties by E. Baughman and Wm. H. Dankers, agricultural economists at University Farm, St. Paul, reveals that, on the majority of farms in that area, Madam Hen is an ill-treated orphan. She is ill-housed and ill-fed. Although she is capable of making a profit for her owner, she isn't given a chance. Consequently, her owner looks upon her as a rather necessary nuisance.

The survey shows that two-thirds of the pullets are raised in farmyards—land on which poultry has roamed for a score of years or more. Impregnated with worm eggs, seeded down with disease germs, this soil produces a profit-killing crop of disease and parasites every year. Eight per cent of farmers interviewed reported death losses ranging from 30 to 55%. Eight to 12% is considered a normal loss and thousands of careful Northwest flock owners have losses of 5% or less.

Instead of starting chicks in March or early April, the profitable time to start chicks, 50% of these flockowners start them in May. The result is that egg production is at the year's low in early fall just when egg prices are at the year's high.

"Of course, poultry out here is just a sideline with us," is the explanation given by the careless flockowner. Certainly, it is just a sideline, an extremely unprofitable sideline, but it needn't be so. Chicks started reasonably early, brooded in a clean brooding house, on clean ground, well fed throughout the growing period, and well housed in the winter, will make a profit commensurate with that from any other farming enterprise. Give Madam Hen a break. She deserves the opportunity to prove that she's a profitmaker.

—The Farmer, Jan. 25, 1941.

Keep the Chain Unbroken

The old proverb: "A chain is only as strong as its weakest link," seems to especially fit this business of raising poultry. In the period from the time the chick is hatched until the pullet finally becomes a producer of profit in the laying house, any letdown in good management serves to defeat the entire scheme of things, no matter how efficient and careful one may be in all other ways.

Breeding, sanitation, housing, and feeding all play their part in the production of the really profitable producer, and all must be given careful consideration, not only during the growing period, but in the laying house as well. Each year, breeders of fine chickens are improving their stock, building greater livability, disease resistance and laying ability. Each year, makers of poultry remedies, disinfectants and biologics, gain new knowledge and come nearer their goal of complete disease control. And each year, makers of poultry feeds, who have spent hundreds of thousands of dollars on research, are finding out just what a chick, growing bird, layer or breeder must have to gain greatest results.

The modern commercial feed is really a marvel of efficiency, with its perfect balance, its vitamins, and all the things — some great and some small—which are added to insure the health and laying ability of the producing birds. Late developments have discovered the causes of nutritional deficiencies and these have been corrected. And, in these fast-moving days, when efficiency is the watchword in all lines of business, it is only natural that the trend the country over is toward these scientifically mixed feeds.

—Rhode Island Red Journal, January, 1941.

Chicken Research Comes Home to Roost

The far-reaching consequences of some types of research work are illustrated by an investigation carried on in the Poultry Division of the University of California by Dr. Herman J. Almquist. He was concerned with finding out the cause or causes of certain types of hemorrhages in chicks. In time, and through a lot of careful work, it was found to be due to a lack of a then-unknown nutritional factor, which was later called vitamin K. About the same time, a Danish investigator, working independently, discovered the same factor.

When a fowl is supplied with adequate amounts of vitamin K, blood clotting time is relatively short. If deficient in vitamin K, the blood does not clot as quickly; if an animal is injured it may bleed to death before sufficient clotting occurs to stop the flow of blood.

This was good news to the medical profession. In surgery, excessive bleeding by certain individuals is always a hazard. Surgeons have found that the danger of excessive bleeding in human patients is reduced if vitamin K is supplied.

We understand that wide use is being made of this newly revealed information. Mention of this fact, with reference to Almquist's work, was made in a recent issue of the Readers Digest.

Thus, the initiative and imagination used in following through an investigation of an obscure malady of chickens, generally thought to be of little consequence, has brought to light information of immense value to humanity, and well-deserved credit to Almquist and the organization of which he is a staff member.

—Pacific Rural Press, Dec. 14, 1940.

Let's Spread Hatching Dates

An erratic supply of any commodity makes for unstable prices, especially so when it is a perishable farm product, whose price is governed by the old law of supply and demand.

It has always been the custom to hatch the greater part of the chicken crop during three months of the year. This can only mean that both meat and eggs are ready for the market at the same time. Thus it is either a feast or a famine, and we get the peaks and valleys, not only of supply, but of prices.

Competition from competitive foods makes it necessary to really merchandise what we as poultrymen produce. The need for better salesmanship and better merchandising is becoming more and more apparent. In cereals and fruit juices, we have a constant supply of well advertised products that rarely vary in price. In eggs and many times poultry meat, at one season of the year we are obliged to take a low price, and six months later we are getting twice as much money. It is my belief that good distribution and sales cannot be developed around, or with, any product with such a price variance.

For instance, in April and again in December, which are apparently the peak production months, our Cooperatives have so many eggs that they are obliged to call all available buyers and plead with them to take eggs, push eggs, and do anything with them to get them off the market. These people are cooperative, the chain stores, particularly, feature eggs at low prices and actually build a good demand.

Then, just about the time the consumer is eating eggs, production drops off, supply shortens up, prices go up 75-80 per cent. The same chain outfit that was getting 200 cases per week, is cut to 50, as there aren't enough to go around, the number of cases received each week have to be spread over all of the customers. The price increase scares the consumer on to a lower grade egg or back with a substitute for breakfast. She searches the cook book for recipes with fewer eggs. The prices have to go tumbling down before she is in the market again. People buy from habit and to stay within their budget. Such a price spread does not help to merchandise any commodity.

It is imperative that we of the industry work toward a more even production; it would be far better if we could cut out those drastic low prices and exorbitant highs. We want to stabilize our prices somewhere in the middle.

I doubt if such an ideal can be accomplished unless each and every poultryman makes an effort to spread out his hatching dates. In this way alone, can we even out production, stabilize prices and make a good living with an industry that, like all farming endeavor, is the backbone of any community and the life blood of a nation.

—Sanford Alger, Jr., New England Poultryman, Dec. 15,, 1940.

Seeing Things

Thinking over the Breeding School at Amherst, I am wondering still about the difference in people about "Seeing things." You remember that Bill Monahan used to talk about the, "Ability to see a hen." Often he used that as one reason why some folks made better progress with hens than some others who could not "See" as well. Too often, we are unwilling to see more than one side.

—Eben Wood, New England Poultryman, Dec. 15, 1940.

Livestock and Grain

It is well known that there is no surplus in the supply of beef in this country, and beef production cannot be speeded up in a few months or a year. A cow has only one calf in a year, and where is the breeding stock? The outlook is now for fewer hogs in 1941, as hog men ran into low prices in both 1939 and 1940, and sows were reduced. Why feed corn to hogs at no profit, when the AAA will take it off our hands, pay for it, and store it? Some of the big talk about surpluses in the United States is going to melt like winter snow before a spring thaw.

There is a surplus of grain as a result of the government's loaning and storing operations. Both wheat and corn should be in supply at prices not far removed from current quotations. Weather over the great wheat belt of the west has been unusually good, and while it only takes one prolonged burn in the spring to spoil this crop's prospects, the outlook now is favorable for a good wheat crop.

The poultryman cannot ask for more than this, i. e., an adequate feed supply, and an expanding market for poultry and egg products guaranteed by the government's arsenal program. It would be more decent and patriotic to look at the whole matter from the standpoint of what we, as an industry, can contribute, rather than what we can get out of it, but like many other industries, we have no fat, and our first reaction seems to be that of a convalescent raising up his head and taking notice after many lean years.

—Frank L. Platt, American Poultry Journal, February, 1941.

SYDNEY, Australia, poultry dealers are now taking steps to increase consumer confidence in poultry meat by informing prospective buyers as to the age of birds offered for sale, marking the birds with colored tabs indicating whether they are preferable for boiling or roasting.

BLACK DUCKS can out-dive Mallard ducks, says Dr. Harry Leon Kutz, Cornell University zoologist. According to American Field, Mallards competed successfully with the Blacks for corn dropped in 5 and 7-foot-deep water, but the Blacks monopolized the grain at 10 feet.

Selling Poultry by Grade

For several years now, the managers of progressive poultry plants have felt that people who raise top-grade chickens are, like the producers of good cattle, entitled to a better price than those who have only common to medium stock.

They have attempted to grade and pay for chickens according to their quality.

Unfortunately, the graded buying program has not progressed as fast as either the poultry packers or producers would like to see it. I know producers have sometimes felt that the premium offered for top quality birds was not high enough and packers have felt that producers were indifferent.

Everyone agrees that poultry should be graded, just as other farm products are, but there has always been someone willing to pay the top price for all chickens, regardless of quality. And, because a dollar is a dollar, producers have seldom let their belief in the principle of graded buying stop them from taking advantage of the poultry buyer's foolishness.

You can't blame a man for that, but it has hindered the development of graded buying, which both producers and packers believe is fundamentally fair.

So far, graded buying of poultry has been little more than a good idea, but it looks now as if it's going to be a necessity.

New ordinances in several cities and more strict enforcement of existing ones in other cities are going to result in poultry being sold for what it is — first, second, or third grade.

As soon as it has to be sold that way, it will have to be bought that way.

I think you will agree that people will make a much greater effort to produce good chickens when they know definitely that, regardless of where they are sold, they will be worth 3 to 4 cents a pound more than second grade birds.

For the good of everyone in the industry, I don't believe the day can come too soon when the differences in the quality of poultry are recognized by corresponding differences in the price. Then we'll really see an improvement in quality.

—Frank Priebe's Weekly Letter to Poultrymen, Copyrighted.

KING JAMES I, deserves credit for helping to popularize the turkey, says Eggs, London, England, poultry publication. According to legend, he kicked the boar's head under the table to get his teeth into some real meat. The pig-breeders of those days were mighty mad about the change-over and swore if he wouldn't have their heads, they'd have his.

Artificial Lights for Turkeys

By NOEL L. BENNION
Oregon State College

Reprinted from Norbest Turkey News

POULTRY producers have used lights on laying hens for many years to obtain increased egg production during the fall and winter months. In recent years, turkey breeders have become interested in a similar program to stimulate early egg production. It has been definitely demonstrated that by proper use of artificial light and shelter, early egg production can be greatly increased with turkey breeders.

Whether or not shelter and artificial lights are used should depend entirely upon the demand or sale for early hatching eggs and poults. In some instances, turkey breeders have used lights and shelter and stimulated early eggs with no sale for them. Naturally, such a procedure is a waste of time and money, to say nothing of the eggs and wear and tear on the breeders.

However, some growers have had sales for early eggs but have waited too long before the lights have been started or else have not provided enough light to stimulate early production.

The time that turkey breeders start to lay cannot always be regulated to the very day or week with artificial lights. The season, type of shelter (if any), age of the birds, and rate of maturity all have a bearing on age or time of first egg. However, under average conditions, where shelter is provided, the lights should be started about four weeks before hatching eggs are desired. The lights should be equipped with reflectors and placed 6 to 10 feet above the roosts so the lights shines on the roosts, watering devices, and at least part of the feeders.

One 50-watt light should be provided for every 100 square feet of roosting space. Dim lights at a considerable distance seem to have very little effect on production. About a 13 to 14-hour day should be provided. The most common procedure is to use only morning lights.

After the lights are turned on, some birds will leave the roosts and consume some feed and water, while others will remain on the roosts until natural daylight. It is a common belief that the increased feed consumption is necessary to get increased egg production. However, recent experimental work goes to show that the light rays stimulate the reproductive organs and as a result, earlier eggs are produced and more of them.

Get 40 to 60 per cent More Eggs

Recent work at the Hermiston, Oregon, Experiment Station, covering a period of three years, goes to show that the lighted and unlighted turkey breeders consumed approximately the same amount of feed, while the lighted birds produced from 40 to 60 per cent more eggs during the hatching season.

In using lights, very often the toms are neglected. Experimental work from the Pennsylvania State College goes to show that toms respond to lights slower than hens. It appears that in order to obtain maximum fertility from early eggs, toms should be placed under lights three or four weeks before the hens with which they are to be mated.

The question is often asked: Can early production be obtained by using shelters without lights or lights without shelter? It has been demonstrated many times that shelter without lights will have very little if any influence on early eggs. On the other hand, lights will stimulate early production without shelter. The amount of stimulation will depend somewhat on climatic conditions. Cold, stormy weather will naturally retard production if the birds don't have any protection.

Results are Satisfactory

Some of the most important questions connected with the use of artificial lights are its effect on fertility, hatchability and livability of the poults. Experimental results at the Hermiston Station go to show that, on the average, fertility was 5.8 per cent less, and hatchability 3.6 per cent less in the lighted pens, compared with breeders under natural conditions. It should be remembered that the lighted pens produced from 40 to 60 per cent more eggs per bird. Slightly better livability was obtained in the poults from the lighted pens, however the difference was insignificant.

In conclusion, there seems to be no question but that artificial lights and shelter have a place in our turkey breeding program for the breeders who are interested in obtaining early hatching eggs and poults. At the same time, field observations indicate they can be overdone, especially if the breeders are not in good physical condition and obtaining a well balanced turkey breeders mash.

Northwestern Turkey Growers Association, Salt Lake City, Utah
(Norbest Turkey News, December, 1940)

A LARGE Chicago hotel offers guests who travel with their dogs a special dog menu on which is featured cooked chicken at 35 cents per quarter-pound serving, says an item in the U. S. Egg and Poultry Magazine. It may be pampering pooches, but it's good for the poultry business.

Chicago Chefs Say:

By MARY C. CLARKE

Condensed from U. S. Egg and Poultry Magazine

THERE'S little doubt about it. Turkey is the best money-maker on the menu," says Fernand Pointreau, executive chef of the Hotel Sherman.

This probably explains why, with only one or two exceptions, every one of a group of representative Chicago hotel and restaurant chefs report they are featuring—and selling—more turkey this year than ever before.

"It is the chef's business," M. Pointreau says, "to merchandise those foods which are most profitable for the hotel to serve." And whether it is a 35-cent counter special at Harding's or a $2.75 squab chicken in the Panther Room, poultry is outselling almost any other single item on the menu in places where the chefs are merchandising their poultry dishes.

Buying and planning his menus with this in mind, M. Pointreau increased the consumption of poultry in the Sherman dining rooms from 175,350 pounds in 1939 to 250,000 pounds in 1940. He served 27,000 pounds of turkey alone in October, 30,000 pounds in November and, because he intends to keep turkey on the menu every day throughout the year, he has built up a reserve supply of 160,000 pounds to carry him through the months when turkeys are not available.

Sells More Turkey Dinners

Ruth Weaver, manager of the Lawson Y. M. C. A. restaurants, did a good job of merchandising when she put across dollar chicken dinners at the "Y". "We have to give more to get dollars," she said, "because the 'Y' is generally considered a cheap place to eat. So we offered chicken on an all-you-can-eat-basis and find that 25 per cent of the Sunday dinners we are selling in the Coral Room now are Homestead Chicken. Although these dinners raised our food average, they lowered our labor cost and increased our check average considerably. We served turkey the same way at Thanksgiving, and sold 80 more turkey dinners than the year before. Since the Coral Room seats only 75, that's a good increase, and we're going to feature Homestead Turkey again for Christmas."

Although the Drake has a reputation as a "beef house" and it still serves a high percentage of beef, between 35 per cent and 40 per cent of the meat they are serving is poultry. Prices being what they are, H. J. Nolan, Drake steward, thinks that poultry is a better buy today for both the hotel and the customer.

(The U. S. Egg and Poultry Magazine, January, 1941)
Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.

Steady Demand for Poultry

The chef at the Maryland Hotel says he's serving 25 per cent more poultry now than he did a few years ago. Poultry items, three or four of which are prominent on each day's menu, represent from 40 per cent to 50 per cent of the meat served in his dining rooms.

At the Palmer House, Executive Chef Amiet (who had just ordered 450 broilers prepared for a luncheon) says he doesn't have to push poultry particularly, because the natural demand for it is so great that 50 per cent of the meat he serves is poultry meat. He averages 1,000 boxes of chicken a week all year, two tons of turkeys a week from the first of November to the end of February, and a lot of pheasant.

Guineas, he and M. Pointreau agree, are not popular. Arnold Shircliffe, on the other hand, says he could sell more guinea than any other kind of poultry at the Wrigley Building restaurant, IF he could serve it for $1.25. At $2.00 or more, he says, people won't buy it.

Public Will Pay More for Chicken

Mr. Shircliffe and a few others feel that, in general, price rather than preference dictates what people order, with the result that poultry sells well only when it is cheaper than other items on the menu.

What people will pay for a meal is necessarily influenced by what they can afford. But since they will pay 65 cents for chicken at Harding's when, Beatrice Hughes says, they won't pay that much for other kinds of meat on the luncheon menu; since they will stretch their budgets to pay a dollar for chicken at the "Y"; since they will pay from $1.70 to $2.50 for half a broiled chicken in the more expensive restaurants where broiled chicken is a consistent "best seller," it looks as if they want chicken enough to pay for it.

As buyers of large quantities of poultry for a rather specialized trade, the hotels and restaurants have certain definite requirements as to size and quality. These requirements vary considerably with the type of meals each one serves and with the personal preferences of the chefs.

The quality buyers may use two or three different packs, but they stick pretty much to the same brands and they seem to have few complaints as to the quality of the poultry they're getting or the uniformity of the pack. "If you insist on a first class pack," says Carl Enchelmayer, who has been buying the same brand for 20 years, "you'll have no trouble."

Three of the chefs interviewed regularly pay a two-cent premium for a closely graded pack and feel that the additional cost is worth the price in satisfaction. One of them has been buying a good fatted grade for years and has found it entirely satisfactory — probably because that particular pack compares favorably with many top grades.

Most of the chefs say they use top grades exclusively. Some find there are occasions when number two's serve their purpose very well. One hotel supply dealer says that many of them must necessarily use a good second grade for low-priced banquets if they are to make anything on them. And another says that a good many of the hotels and restaurants (including some of the most expensive) buy number two packs consistently. He also says that a good many complaints may arise from the fact that although the chef has bought top grades, he sometimes gets fatted grades. Naturally, the chef then blames the packer for doing a poor job.

In some cases, however, the chefs have only themselves to blame for these substitutions. They are often so inflexible in their demands for certain sizes, regardless of market conditions or available supply, that the hotel supply dealer is hard put to it to fill the order.

Some Won't Consider Other Sizes

If they want 24-pound broilers, he says, they won't consider 26-pound birds even when the smaller size is scarce and the spread between the two is enough to make the slightly larger birds a more economical buy. Why, under these circumstances, a little over two ounces a bird makes so much difference to the chefs is something the poultry dealers can't figure out. But some of the chefs insist a certain size is the only desirable or practical size for them to use, regardless of price.

Although most of them stick to certain sizes, there is a wide variation in the sizes the chefs require for the same purpose. They buy everything from 16 to 27-pound chickens to broil, everything from 24 to 42-pound birds to fry — the size depending partly on their preference, partly on whether they serve a quarter or a half chicken per portion.

Hotels Using Larger Turkeys

The size of the portion also determines the size chickens they buy to roast. Chefs serving half a roast chicken use 24-pound chickens. The others use almost anything up to 54-pound birds. They usually buy 36-pound chickens for breasts, 16-pound squab chickens, 60-pound fowl.

According to the supply houses, 18 to 22-pound turkeys are most in demand now. This means the hotels are using larger birds than they were a few years ago, but, until the last few weeks, comparatively few of them were taking advantage of the lower price on 22-pound and over birds.

Majority of Chefs Seem Satisfied

While the majority of the chefs are reasonably well satisfied with the poultry they are getting (two of them think the packers have been doing a much better job in the last three or four years) there are several who are not at all sold on either box-packed poultry or the kind of job the packers are doing.

Jacques and Miss Weaver agree that while there is nothing wrong with the quality of box-packed

is Arnold Shircliffe who has switched from box-packed to fresh poultry. Part of this he gets from a small farm, the rest from a commercial producer. Although he consistently bought the best top grades available, Mr. Shircliffe felt they left much to be desired in the way of uniformity and he wants closer grading both for quality and size before he will go back to box-packed poultry.

Thinks Packers Could Do Better Job

"The packers should be able to do a better job than these amateurs,"

good that everything is perfect, I'm afraid we'll be too smart for our own good."

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National Poultry Digest

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Some Won't Consider Other Sizes

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Jacques and Miss Weaver agree that while there is nothing wrong with the quality of box-packed poultry, it is definitely lacking in flavor.

Carder's started raising their own chickens on a farm near Stewardsville, Mo., two and a half years ago because they wanted fresh chickens all year around. They pay a two-cent premium for day-old White Rocks, raise them in batteries to two and a quarter or two and a half pounds, express them to Chicago twice a week. Although raising their own chickens has not been without its problems, Mr. Stiles says they find their own birds more uniform, the texture of the meat better, and their cost consistent the year round, thus doing away with the necessity of raising the price on their menu.

Most insistent in his complaints is Arnold Shircliffe who has switched from box-packed to fresh poultry. Part of this he gets from a small farm, the rest from a commercial producer. Although he consistently bought the best top grades available, Mr. Shircliffe felt they left much to be desired in the way of uniformity and he wants closer grading both for quality and size before he will go back to box-packed poultry.

Thinks Packers Could Do Better Job

"The packers should be able to do a better job than these amateurs," he said, "but they don't do it. They should work closer with producers to get them to raise the kind of chickens the consumer wants and they should refuse to buy from producers who raise second-rate birds. I want birds with bigger breasts and smaller bones and I'm not going to be satisfied until I get them."

The Maryland chef, on the other hand, definitely prefers box-packed to fresh chickens and M. Amiet is not particularly concerned over the runt Mr. Shircliffe claims is in every box. "Certainly we like the birds to be uniform," said the Palmer House chef, "but I wouldn't complain about an occasional bird that was smaller than the rest anymore than I'd complain about a few poor potatoes in the bag. When we get so good that everything is perfect, I'm afraid we'll be too smart for our own good."

CRANBERRY growers are helping to promote the sale of eggs by distributing a recipe for a Cranberry-Egg Cocktail.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, and of Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock Preceding year Nov. 1	Dec. 1	Jan. 1	Eggs per 100 layers Preceding year Nov. 1	Dec. 1	Jan. 1	Eggs per flock Preceding year Nov. 1	Dec. 1	Jan. 1
North Atl.									
1930-39 (Av.)	87.6	93.9	97.5	20.5	21.7	26.8	17.8	20.4	26.2
1940	88.5	92.9	97.2	27.2	28.2	34.1	24.0	26.2	33.1
1941	86.8	92.4	95.4	26.2	30.1	37.7	22.5	27.6	36.1
E. N. Cent.									
1930-39 (Av.)	93.1	103.1	108.8	18.1	16.1	20.1	16.8	16.8	22.1
1940	98.0	107.4	110.8	22.7	24.0	28.6	22.3	26.2	32.0
1941	99.0	106.9	110.3	24.3	23.6	30.3	24.2	25.6	33.9
W. N. Cent.									
1930-39 (Av.)	98.8	109.6	117.6	15.3	11.4	15.2	15.1	12.7	17.9
1940	98.7	109.9	118.6	17.9	17.9	23.0	17.7	19.8	27.5
1941	96.9	109.9	116.1	21.4	13.8	22.0	20.8	15.4	25.7
South Atl.									
1930-39 (Av.)	52.6	55.8	58.6	20.5	18.8	21.2	10.8	10.5	12.4
1940	54.8	56.9	59.9	24.8	23.8	28.0	13.7	13.7	16.7
1941	53.4	57.0	59.4	24.8	24.1	28.7	13.4	13.9	16.9
South Cent.									
1930-39 (Av.)	57.4	60.6	64.4	20.1	16.2	18.1	11.6	9.9	11.7
1940	59.3	62.4	65.8	21.6	18.5	22.3	13.0	11.8	14.8
1941	56.7	59.2	62.7	23.7	19.0	22.6	13.6	11.4	14.4
Western									
1930-39 (Av.)	66.8	71.0	73.2	22.7	19.2	23.6	14.8	13.2	16.8
1940	67.5	70.4	73.7	26.5	24.2	30.2	17.0	16.1	21.8
1941	64.9	68.7	71.6	27.9	22.4	27.6	17.1	14.4	19.3
United States									
1930-39 (Av.)	73.3	79.4	84.0	18.5	15.8	19.3	13.7	12.7	16.2
1940	75.1	80.8	85.1	22.0	21.5	26.3	16.6	17.3	22.2
1941	73.5	79.4	83.2	23.9	20.2	26.6	17.6	16.3	22.1

December egg production, estimated at 2,175 million eggs, was 2 per cent smaller than the record high production of 2,213 million eggs in 1939, but 36 per cent larger than the 10-year (1929-38) average of 1,601 million eggs. The 2 per cent decrease in egg production from December 1939 was due entirely to a smaller number of layers, since the rate of lay was about the same.

Annual egg production in 1940 was 38,892 million eggs, an output exceeded only by the record production of 39,067 million eggs in 1930. It exceeded the 1939 production by 2 per cent and the 10-year average by 7 per cent.

A record of egg production by months over the past 15 years shows that the increase in the annual egg production has been due mainly, not to a uniform all-the-year-round increase in the rate of lay, but to an increased

production in the fall and winter months — especially from November through February, the period of lowest egg production. Since practically all hens lay freely during the spring and summer, the object of breeders has been to increase production during the off season by changing the dates of hatching, by breeding, and by management practices conducive to fall and winter egg production. Many commercial flocks now produce the largest proportion of their eggs during the winter months when egg production generally is at its low point, and egg prices are the highest. During the last 15 years the monthly rate of lay has increased 80 per cent in January, 4 per cent in April, 12 per cent in August, 72 per cent in November and 78 per cent in December.

The average rate of lay per layer during December was slightly less than a year earlier—6.76 eggs, compared with 6.79 eggs in December 1939 and the 10-year (1929-38) average of 4.95 eggs. The average December rate of lay has increased 36 per cent during the last 5 years and 78 per cent during the last 15 years.

The 1940 aggregate monthly rate of lay per average layer on hand was 134.8 eggs compared with 135.4 eggs in 1939 and the record high of 137.4 eggs in 1938. The recession in the rate during 1940 was due mainly to the reduced rate of lay in January and February, the result of extensive and violent storms with extremely cold weather. The rate in each month from May to November inclusive was higher in 1940 than in 1939.

The December rate of lay per layer was the highest on record in all areas except the West North Central and Western States. Gains over December 1939 of 10 per cent in the North Atlantic, 4 per cent in the South Atlantic and 3 per cent in the East North Central and South Central areas, were offset by decreases of 13 per cent in the West North Central and 9 per cent in the Western areas.

The 1940 aggregate monthly rate of lay per average layer on hand was below that of 1939 in all geographic areas except the highly commercialized States in the North Atlantic and Far Western areas, where the rate was a fraction of 1 per cent larger than in 1939.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Marketings of live poultry at Central Western packing plants continue to show decreases each week, as has been the case since the middle of October, except during the holiday periods. Since the first week of January, receipts at these points have dropped below those during the corresponding periods in 1940. Receipts of dressed poultry at the four markets in December exceeded those of a year earlier by 13.6 per cent, but have since dropped materially. Available figures indicate that the January reduction under last year has been about 20 per cent.

Another phase of the supply situation that has been of considerable influence is the recent pick-up in current receipts, both at country assembling points and at terminal markets. Since the early part of December, increases have been reported each succeeding week at Central West packing plants, with exceptionally heavy increases in January. Receipts at these plants during the third week in January were more than double those of a month earlier. In the four principal terminal markets, receipts during the week ended January 25 were 231,000 cases, whereas a month earlier, during the week which ended December 28, they were only 147,000 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic section	December 1940	December 1939	% change	Jan. to Dec., Inc. 1940	Jan. to Dec., Inc. 1939	% change
New England	65,035	50,946	+ 27.7	478,457	393,456	+ 21.6
Middle Atlantic	187,477	148,036	+ 26.6	2,111,644	1,958,743	+ 7.8
South Atlantic	10,456	12,288	− 14.9	250,716	268,166	− 6.5
East North Central	165,370	167,404	− 1.2	2,985,440	2,752,987	+ 8.4
West North Central	171,401	238,230	− 28.1	7,388,542	7,399,990	− 0.2
South Central	474	548	− 13.5	77,037	56,004	+ 37.6
Mountain	15,089	41,051	− 63.2	394,215	321,687	+ 22.5
Pacific	46,308	80,978	− 42.8	532,724	567,183	− 6.1
Miscellaneous	320	316	− 1.3	5,064	5,080	− 0.3
TOTAL	661,930	739,797	− 10.5	14,223,839	13,723,296	+ 3.6

Receipts of Dressed Poultry (pounds) at 4 Markets*

New England	579,497	383,756	+ 51.0	15,187,123	13,237,894	+ 14.7
Middle Atlantic	1,869,885	1,204,631	+ 55.2	47,774,245	38,391,302	+ 24.4
South Atlantic	2,444,275	2,140,763	+ 14.2	29,223,059	18,899,705	+ 54.6
East North Central	7,186,249	6,158,692	+ 16.7	45,313,710	44,200,133	+ 2.5
West North Central	54,283,785	49,475,767	+ 9.7	252,139,442	225,849,621	+ 11.6
South Central	7,407,276	7,301,073	+ 1.5	30,230,365	30,098,123	+ 0.4
Mountain	6,949,791	6,601,109	+ 5.3	15,859,415	13,416,427	+ 18.2
Pacific	4,576,331	1,797,949	+154.5	18,210,179	11,286,942	+ 61.3
Miscellaneous	0	0	−	128,680	58,117	+121.4
TOTAL	85,297,089	75,063,740	+ 13.6	454,066,218	395,438,264	+ 14.8

* New York, Chicago, Philadelphia, and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	% Chg.	Pounds of Poultry (ooo omitted) 1941	1940	% Chg.	Pounds of Young Stock (ooo omitted) 1941	1940	% Chg.	Pounds of Fowl (ooo omitted) 1941	1940	% Chg.
Jan. 4	29,763	32,256	− 7.73	1,933	1,913	+1.06	591	672	−12.11	1,266	1,195	+ 5.99
Jan. 11	47,831	32,115	+ 48.94	2,105	2,174	−3.18	565	551	+ 2.63	1,466	1,564	− 6.23
Jan. 18	51,213	24,604	+108.15	1,927	2,104	−8.42	Discontinued			1,366	1,591	−14.10
Jan. 25	55,908	27,118	+106.16	1,636	1,639	−0.17	For Time Being			1,188	1,311	− 9.34

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
January 4	59	48,252	58,456	−2.91	−17.40
January 11	60	53,182	59,839	+9.69	−11.12
January 18	60	54,420	60,726	+2.18	−10.38
January 25	60	56,319	60,791	+3.49	− 7.36

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
January 4	26	35,420	+16.33	+ 8.44
January 11	27	44,362	+12.58	+32.94
January 18	27	38,987	− 9.65	+29.54
January 25	28	39,214	− 2.44	+27.17

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941	1940	1939	Avg. Egg Price per Doz. (Dollars) 1941	1940	1939	Avg. Feed Cost per 100 lbs. (Dollars) 1941	1940	1939
January 2	7.5	6.0	7.0	.26	.28	.263	1.96	1.68	1.85
January 9	8.4	9.3	7.3	.232	.218	.231	1.94	2.02	1.68
January 16	9.5	9.2	7.3	.206	.218	.228	1.96	2.01	1.67
January 23	9.4	8.3	8.2	.208	.239	.203	1.96	1.97	1.67
January 30	9.8	7.9	8.4	.20	.242	.196	1.95	1.92	1.65

—Compiled by N. Y. State Dept. of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941	1940	10-Yr. Avg. 1931-40	Price of Fresh Graded Firsts (Dollars) 1941	1940	Cost of Ration per 100 lbs. (Dollars) 1941	1940
January 4	5.74	6.72	5.04	.220	.190	1.262	1.276
January 11	6.37	6.66	5.54	.195	.190	1.248	1.266
January 18	6.86	6.32	5.76	.177	.201	1.217	1.272
January 25	7.16	5.38	5.82	.175	.234	1.254	1.262

—Compiled from U. S. D. A. market reports.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1940	1939	1938	1937	1936	1935
December	5.71	8.12	4.35	6.12	6.82	5.17
Year	7.87	7.17	6.50	8.27	7.07	6.41

—Data Compiled by Edwin C. Voorhies, University of California

Egg Prices

Wholesale prices of eggs have tended downward throughout January. This is just the opposite of the January 1940 price movement. In New York City, Mixed Color Firsts, which were 24½ cents at the beginning of January, were quoted at 18¼ cents on January 31. Early in the month, prices of this grade were 4½ cents higher than a year earlier, while now they are 6 cents lower. Other grades show similar trends, although not to the same degree. Chicago Firsts are now 17 cents, compared with 22 cents early in the month, and 21 cents a year ago. At San Francisco, U. S. Extras are now 21½ cents, compared with 26½ cents in early January, although current prices in that market are 2 cents higher than a year ago. At Chicago, early January sales of futures contracts on February Fresh Firsts were close to 19 cents. These contracts were selling at 17½ cents on January 31. The Surplus Marketing Administration entered the market on the last day of January for the first time this month, making purchases of approximately 1,400 cases at Chicago, and 88 cases at New York.

January egg markets were definitely weak, the Agricultural Marketing Service reports, generally being featured by sharp price declines. The present weak tone may be attributed to several conditions,—the pick-up in current marketings, heavier terminal market receipts, relatively heavy storage stocks for the season, and a new season that will be here in another couple of months.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Jan. 3	Jan. 10	Jan. 17	Jan. 24	Jan. 31	Jan. 31, '40
Mixed Color Firsts	23½	19¾	19½	18¾	18¼	24¼
Nearby and Midwestern White Premium Marks	26-27½	22½-24	22½-24	21½-23	21½-23	25-26½
Nearby and Midwestern Wh. Exchange Specials	25-25½	22	22	21	21	24½
Pacific Coast Specials	28¼-28¾	25½-26	25½-26	25½-26	25½-26	27-27½
Nearby and Midwestern Brown Specials	24½	21¾-22	21	19½-19¾	20¼	24½

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1929-38	24.2	20.3	17.3	16.8	16.8	16.8	18.1	19.9	23.2	26.2	30.1	28.8
1939	18.8	16.7	16.0	15.5	15.2	14.9	16.5	17.5	20.6	22.9	25.8	20.5
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8

Eggs in Storage

Total quantities of shell eggs in storage on January 1 were 618,000 cases, about half of which (300,000 cases) were owned by the Surplus Marketing Administration and various states for relief distribution. On that basis, commercially owned stocks on January 1 approximated 318,000 cases. Last year's January 1 stocks of 532,000 cases were all commercially owned. Thus, in the matter of storage eggs available for regular trading, there was a reduction on January 1 this year of some 200,000 cases. The 35 cities weekly storage reports show that Surplus Marketing Administration and relief agency stocks have been moved from storage at an increasingly rapid rate this month, but that the commercial stocks reduction has slowed up. Stocks reported in the 35 cities at the close of the week ending January 25 were 285,000 cases, all except 91,000 cases of which were in commercial hands. These commercial holdings of 194,000 cases, are comparable with the 78,000 cases reported in the same markets on the corresponding weekend of 1940. This year there are more commercially owned eggs in storage than at the same time a year earlier. However, it must be noted that the February 1 stocks reported in 1940 were unusually low for that date, being only 57,000 cases. The February 1 five-year average, 1936-1940, is 227,000 cases.

Frozen egg stocks on January 1 were 72,756,000 pounds, which compared favorably with a year earlier, as well as with the 1936-40 average for that date. The weekly out-of-storage movements in the 35 cities since January 1, have been at a more rapid rate than in January 1940. At the beginning of the month, frozen egg stocks were approximately a million pounds heavier than a year earlier, but they were 1½ million pounds lighter, according to the report for the week ended January 25.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	Jan. 1 5-Year Avg. 1936-40	Jan. 1 1940	Dec. 1 1940	Jan. 1 1941	% Change Jan. '40-Jan. '41
		(Thousands)			
Shell Eggs (cases)	656	532	1,969	618**	+16.1
Frozen Eggs (lbs.)	73,155	72,279	91,273	72,756	+ 0.6
Frozen Case Equivalent (cases)*	2,090	2,065	2,608	2,079	+ 0.6
Total (cases)	2,746	2,597	4,577	2,697	+ 3.8

* Frozen eggs are converted on the basis of 36 lbs. to the case.

** Includes 300,668 cases owned by the Surplus Marketing Administration for relief distribution.

Poultry Meat Prices

Mid-Month Farm Prices of Chickens Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1929-38	14.8	15.0	15.3	15.9	15.7	15.5	15.1	14.9	15.2	14.6	14.1	13.6
1939	14.0	14.2	14.3	14.4	13.9	13.4	13.7	13.0	13.6	12.7	12.4	11.7
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0

Live poultry prices seemed to lack strength in some quarters toward the middle of the month, but, in general, the January tone was steady to firm. Some tendency toward slight price advances appeared at the close of the month, although this varied with different classes. Prices are higher than a year ago. Receipts of live poultry at New York are running less than in January of last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	Jan. 1 5-Year Avg. 1936-40	Jan. 1 1940	Dec. 1 1940	Jan. 1 1941	% Change Jan. '40-Jan. '41
		(Thousand Pounds)			
Broilers	14,323	11,169	10,729	11,129	– 0.4
Fryers	14,438	12,809	12,690	14,296	+ 11.6
Roasters	32,398	31,117	27,473	35,075	+ 12.7
Fowls	25,031	27,834	33,816	39,005	+ 40.1
Turkeys	30,516	52,307	31,888	60,108	+ 14.9
Ducks	5,197	5,852	9,322	7,926	+ 35.4
Miscellaneous	23,202	19,211	18,773	20,865	+ 8.6
Unclassified		7,344	14,419	19,830	+170.0
Total	145,105	167,643	159,110	208,234	+ 24.2

Frozen poultry in storage is still considerably greater than a year ago, but the amount of the excess is less than at the beginning of the month. January 1 stocks of all classes totaled 208 million pounds, compared with 167½ million pounds a year earlier, and the five-year average of 145 million pounds. Stocks in the 35 cities on January 4 were 162 million pounds, which was an increase of 28 million over a year earlier. By January 25, 35 cities stocks were reduced to 152 million pounds, an increase of only 18½ million pounds over the corresponding period of last year.

—Comment from U.S.D.A. Monthly Egg and Poultry Markets Review.

Hatchery Operations

Eggs Set, Chicks Hatched, and Chicks Booked by Commercial Hatcheries

Geographic Section	No. of Plants	Eggs Set During December			Salable Chicks Hatched During December			Chicks booked Jan. 1 for Jan. or later delivery			
		1939	1940	% Chg.	1939	1940	% Chg.	No. of Plants	1939	1940	% Chg.
		Thousands			Thousands				Thousands		
N. Eng.	25	1,097	2,064	+88	1,046	1,260	+20	13	1,422	2,060	+45
Mid. Atl.	15	659	936	+42	300	523	+74	12	421	490	+16
S. Atl.	31	1,254	1,805	+44	997	1,286	+29	17	953	1,139	+20
E. N. Cent.	49	1,009	1,374	+36	523	694	+33	38	889	1,431	+61
W. N. Cent.	16	603	457	–24	294	181	–38	13	498	393	–21
S. Cent.	23	736	742	+ 1	339	366	+ 8	14	539	709	+32
West.	30	832	1,022	+23	341	317	– 7	31	3,463	3,376	– 3
U. S.	189	6,190	8,400	+36	3,840	4,627	+20	138	8,185	9,598	+17
Jan.-Dec. Inc.		176,091	163,471	– 7	119,206	107,878	–10		103,430	94,902	– 8

A substantial increase is indicated in the production of baby chicks during December compared with same month last year. Reports from 189 hatcheries having a combined capacity of 31 million eggs, showed a production of 4,627,000 chicks during December compared with 3,840,000 a year earlier—an increase of 20 per cent. Hatcheries reporting for the 12 months of 1940 showed a combined output of 107,878,000 chicks compared with 119,206,000 during the same months of 1939—a decrease of 10 per cent.

All sections of the country reported larger hatches, compared with December last year, with the exception of the West North Central States and Western States, where decreases of 38 per cent and 7 per cent, respectively, were reported. Practically all of the demand for chicks during December was for broiler-producing purposes. Hatcheries reported that 93 per cent of their output in December consisted of heavy breeds compared with 90 per cent in December last year. Substantial gains over December last year in chicks hatched were reported in the other sections of the country. The Mid-Atlantic States reported an increase of 74 per cent, the East North Central States 33 per cent, the South Atlantic States 29 per cent, the New England States 20 per cent and the South Central States 8 per cent.

The stronger demand for hatchery chicks in December is largely the result of improved broiler prices. Prices for young chickens have risen from 2 to 5 cents a pound during the past several months and are 4 to 5 cents a pound higher than at this time last year. Egg prices have dropped sharply during the past month and are practically the same as they were last year.

That producers are taking increased interest in poultry is evident in eggs set during December and in chicks booked for January or later delivery. Hatcheries reporting eggs set during December showed an increase of 36 per cent over the number set during December last year. Bookings or advanced orders of January 1 showed an increase of 17 per cent over the same time last year.

—Comment from U. S. D. A. Hatchery Report.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		December 1940	December 1939	Jan. to Dec., Inc. 1940	Jan. to Dec., Inc. 1939
Eggs in shell	(doz.)	317,961	307,176	4,570,806	2,696,826
Eggs and Yolks, frozen, dried or canned	(lbs.)	21,889	Not available	189,082	Not available
Live Poultry	(lbs.)	4,840	5,445	107,879	164,206
Dressed Poultry	(lbs.)	239,456	249,125	1,680,176	2,583,495

Imports of Eggs and Poultry

Commodity		December 1940	December 1939	Jan. to Dec., Inc. 1940	Jan. to Dec., Inc. 1939
Eggs in shell	(doz.)	24,381	29,746	227,411	328,523
Whole Eggs, dried	(lbs.)	0	11,500	40,950	61,500
Whole Eggs, frozen	(lbs.)	0	0	167	420
Yolks, dried	(lbs.)	223,420	54,450	2,457,536	682,805
Yolks, frozen	(lbs.)	0	0	420	25,330
Egg Albumen, dried	(lbs.)	22,389	46,700	332,389	500,479
Egg Albumen, frozen	(lbs.)	0	0	0	0
Live Poultry	(lbs.)	114,235	138,072	1,441,212	827,763
Dressed Poultry	(lbs.)	14,866	21,898	382,575	195,280
Poultry, prepared	(lbs.)	37,267	51,924	327,200	733,795

Egg Breaking Operations

Egg Breaking Operations During December, 1940

Commodity		Quantities reported to date for Dec. 1940	Same Firm Comparison Dec. 1939	Same Firm Comparison Dec. 1940	Same Firm Comparison % change in 1939
		Pounds	Pounds	Pounds	Per cent
Whole eggs (nothing added)		188,819	266,682	188,819	–29
Mixed eggs (plain)		32,640	63,540	32,640	–49
Mixed eggs (emulsions, also with sugar, salt, etc.)		30,495	22,660	30,495	+35
Egg whites (all descriptions)		54,275	132,600	54,275	–59
Egg yolks packed	Without salt, sugar, etc.	50,625	93,861	50,625	–46
	With sugar	4,630	42,363	4,630	–91
	With salt	0	0	0	
	All yolk emulsions, including glycerine	0	0	0	
Total—pounds		361,484	621,706	361,484	–42
Total—case egg equivalent		10,328	17,763	10,328	–42
Number of firms reporting*		22	22		

* Firms, not plants. Some firms operate more than one plant.

RESULTS OF LAYING TESTS

With the first three months of the 1940-41 laying test year a matter of history, the following are the leading pens in each of the five major breeds: J. A. Hanson's pen at Storrs in White Leghorns, E. B. Parmenter's pen at Maine in Rhode Island Reds, T. N. Wilcox's pen at Georgia in Barred Rocks, Colonial Poultry Farm's pen at Texas in New Hampshires, and Albert C. Lawton's pen at Storrs in White Rocks.

W. A. Seidel's White Leghorn at Texas is the highest scoring individual to January 1, having a total of 91 eggs and 99.5 points.

The heaviest producing pen during the 31 days of December was E. B. Parmenter's Rhode Island Red team at Maine. These 13 birds produced 380 eggs for 405.05 points.

Less than a full point separates the two leading pens to date. J. A. Hanson's pen at Storrs has piled up a total of 1102.75 points from 1076 eggs, while E. B. Parmenter's pen at Maine has earned 1102.15 points from 1041 eggs.

Georgia Test continues to have the highest average to date with 60.69 eggs and 58.05 points per bird. Arizona, Texas, Storrs, and Florida follow in the order named. Although it is the smallest of all 18 standard tests, the Paterson, N. J., Test has the lowest mortality through the 92 days to January 1.

The average production for all tests is 49.43 eggs and 48.3 points this year thus far, compared with 48.31 eggs and 47.03 points at the same time a year ago.

Twenty Highest Pens, All Breeds, to January 1—(92 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1076	1102.75	Storrs
E. B. Parmenter	Rhode Island Red	1041	1102.15	Maine
T. N. Wilcox	Barred Rock	1070	1098.20	Georgia
J. J. Warren	Rhode Island Red	1023	1076.15	Long Island
H. J. Hardin	Rhode Island Red	1071	1073.10	Georgia
W. H. Wilson	Rhode Island Red	1090	1060.85	Georgia
G. B. Treadwell	Rhode Island Red	1027	1059.20	Maine
E. B. Parmenter	Rhode Island Red	1012	1035.25	Long Island
L. D. Bartholomew	Rhode Island Red	991	1033.00	Storrs
W. H. Wilson	Rhode Island Red	1039	1032.40	Georgia
J. J. Warren	Rhode Island Red	1035	1028.70	Georgia
J. J. Warren	Rhode Island Red	1010	1025.25	Florida
J. J. Warren	Rhode Island Red	1011	1023.55	Storrs
J. J. Warren	Rhode Island Red	949	1016.65	Maine
Rapp's Poultry Farm	White Leghorn	1004	1016.55	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	1009	1015.85	Maine
J. J. Warren	Rhode Island Red	1019	1012.00	Storrs
Kauder's Pedigreed Leghorns	White Leghorn	1026	1011.60	Texas
Missouri Valley Hatchery	Rhode Island Red	933	1009.00	Missouri
Roberts Poultry Farm	Rhode Island Red	951	1005.55	Storrs

High Pen in Each Standard Test to January 1—(92 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1076	1102.75	Storrs
E. B. Parmenter	Rhode Island Red	1041	1102.15	Maine
T. N. Wilcox	Barred Rock	1070	1098.20	Georgia
J. J. Warren	Rhode Island Red	1023	1076.15	Long Island
J. J. Warren	Rhode Island Red	1010	1025.25	Florida
Rapp's Poultry Farm	White Leghorn	1004	1016.55	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	1026	1011.60	Texas
E. B. Parmenter	Rhode Island Red	1010	1001.00	Paterson, N. J.
Missouri Valley Hatchery	Rhode Island Red	933	1009.00	Missouri
J. A. Hanson	White Leghorn	985	994.60	Pennsylvania
J. A. Hanson	White Leghorn	977	990.60	Rhode Island
J. J. Warren	Rhode Island Red	973	983.70	Western New York
George A. Pearce	Rhode Island Red	1008	982.80	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	935	963.65	California
Bodine's Pedigreed Leghorns	White Leghorn	1004	949.55	Central New York
Missouri Valley Hatchery	Rhode Island Red	925	934.25	Oklahoma
Gold Spot Hatchery	White Leghorn	896	930.95	Arizona
J. J. Warren	Rhode Island Red	831	848.75	Michigan

High Pen in Each Standard Test for December

Owner	Breed	Eggs	Points	Test
E. B. Parmenter	Rhode Island Red	380	405.05	Maine
T. N. Wilcox	Barred Plymouth Rock	375	397.50	Georgia
W. A. Seidel	White Leghorn	364	390.50	Storrs
E. B. Parmenter	Rhode Island Red	360	369.00	Paterson, N. J.
Rapp's Poultry Farm	White Leghorn	352	367.70	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	341	366.25	Long Island
Colonial Poultry Farm	New Hampshire	341	363.40	Texas
E. B. Parmenter	Rhode Island Red	346	361.85	Passaic, N. J.
Crooks Farm	Rhode Island Red	338	357.55	Pennsylvania
Richard H. Gee	Rhode Island Red	340	355.60	Rhode Island
J. J. Warren	Rhode Island Red	327	352.05	Missouri
H. L. Kreis	Rhode Island Red	337	341.05	California
Williamson's N. H. Farm	New Hampshire	322	339.90	Florida
J. J. Warren	Rhode Island Red	329	336.75	Western New York
Philip Liggett	Black Australorp	313	334.90	Arizona
Bodine's Pedigreed Leghorns	White Leghorn	337	334.00	Central New York
Missouri Valley Hatchery	Rhode Island Red	316	330.55	Oklahoma
W. S. Hannah & Sons	Rhode Island Red	282	297.25	Michigan

High Pen in Each Breed to January 1—(92 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1076	1102.75	Storrs
E. B. Parmenter	S. C. Rhode Island Red	1041	1102.15	Maine
T. N. Wilcox	Barred Rock	1070	1098.20	Georgia
Colonial Poultry Farm	New Hampshire	960	1002.35	Texas
Albert C. Lawton	White Rock	905	857.85	Storrs
Harvey E. Taylor	White Wyandotte	853	794.80	Texas
Raymond S. Thomas	Ancona	770	727.95	Pennsylvania
Paul Hansen	Black Australorp	751	726.45	California
Superior Hatchery	Light Brahma	642	632.40	Georgia
S. E. Raymond	Lamona	589	605.15	Storrs
Lindstrom Poultry Farm	Buff Minorca	647	577.00	Texas
E. J. Covey	Black Minorca	554	558.95	Texas
Howard C. Jones	Buff Orpington	532	514.75	Florida
Iowa Master Breeders	R. C. Rhode Island Red	503	508.30	Texas
Illinois Hatchery	Brown Leghorn	496	483.10	Texas
Raymond Murphy	White Giant	462	481.70	Missouri
Colonial Poultry Farm	White Minorca	226	239.55	Missouri
Ward's Poultry Farm	Buff Leghorn	259	229.45	Oklahoma

High Hen in Each Breed to January 1—(92 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	91	99.50	Texas
Colonial Poultry Farm	New Hampshire	90	98.70	Texas
J. J. Warren	Single Comb Rhode Island Red	89	97.40	Maine
T. N. Wilcox	Barred Rock	85	90.75	Georgia
Lindstrom Poultry Farm	White Rock	87	89.00	Georgia
Harvey E. Taylor	White Wyandotte	79	82.00	Texas
Laclede Hatchery	Black Australorp	78	79.75	Missouri
Howard C. Jones	Buff Orpington	72	73.55	Florida
Raymond Murphy	White Giant	67	72.65	Missouri
S. E. Raymond	Lamona	73	72.60	Storrs
Iowa Master Breeders	R. C. Rhode Island Red	68	71.90	Texas
Raymond S. Thomas	Ancona	74	70.55	Pennsylvania
Superior Hatchery	Light Brahma	69	67.15	Texas
E. J. Covey	Black Minorca	66	66.40	Texas
Illinois Hatchery	Brown Leghorn	67	60.05	Texas
Lindstrom Poultry Farm	Buff Minorca	58	59.20	Texas
Colonial Poultry Farm	White Minorca	53	56.85	Missouri
Ward's Poultry Farm	Buff Leghorn	45	42.60	Oklahoma

High Hen in Each Standard Test to January 1—(92 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	91	99.50	Texas
J. J. Warren	Rhode Island Red	89	97.40	Maine
E. B. Parmenter	Rhode Island Red	92	96.95	Storrs
E. B. Parmenter	Rhode Island Red	89	95.80	Rhode Island
E. B. Parmenter	Rhode Island Red	89	95.75	Pennsylvania
J. J. Warren	Rhode Island Red	89	95.50	Georgia
Rapp's Poultry Farm	White Leghorn	87	95.20	Hunterdon, N. J.
Geo. M. Heberer	White Leghorn	88	93.70	Florida
Missouri Valley Hatchery	Rhode Island Red	85	92.90	Missouri
E. B. Parmenter	Rhode Island Red	85	92.70	Long Island
Gold Spot Hatchery	New Hampshire	89	91.45	Arizona
Foreman Poultry Farm	White Leghorn	86	91.25	Passaic, N. J.
Missouri Valley Hatchery	Rhode Island Red	89	89.80	Oklahoma
J. A. Hanson	White Leghorn	83	88.75	California
E. B. Parmenter	Rhode Island Red	82	87.60	Paterson, N. J.
Fred Schempf	White Leghorn	81	86.15	Central New York
J. J. Warren	Rhode Island Red	84	85.40	Western New York
Colonial Poultry Farm	New Hampshire	85	82.15	Michigan

High Hen in Each Standard Test for December

Owner	Breed	Eggs	Points	Test
E. B. Parmenter	Rhode Island Red	31	34.10	Long Island
Colonial Poultry Farm	New Hampshire	31	34.10	Texas
Foreman Poultry Farm	White Leghorn	31	33.95	Georgia
G. Clifford Butterworth	Rhode Island Red	31	33.90	Rhode Island
Cane Poultry Farm	Rhode Island Red	31	33.90	Hunterdon, N. J.
J. A. Hanson	White Leghorn	31	33.75	Storrs
Rhodes Hatchery	New Hampshire	31	33.65	Florida
E. B. Parmenter	Rhode Island Red	31	33.60	Paterson, N. J.
Eugley's Poultry Plant	Rhode Island Red	31	33.60	Maine
Teasdale Poultry Farm	Barred Rock	30	32.95	Central, N. Y.
Guy A. Leader	White Leghorn	30	32.90	Pennsylvania
George A. Pearce	Rhode Island Red	30	32.85	Passaic, N. J.
Gold Spot Hatchery	New Hampshire	30	32.55	Arizona
Fisher Orchards	Barred Rock	30	32.10	Michigan
Missouri Valley Hatchery	Rhode Island Red	29	31.90	Missouri
J. J. Warren	Rhode Island Red	29	31.60	Oklahoma
J. J. Warren	Rhode Island Red	29	31.45	Western New York
Thomas H. Mettler	Rhode Island Red	29	31.35	California

Twenty Highest White Leghorn Pens in Country to January 1

Owner	Eggs	Points	Test
J. A. Hanson	1076	1102.75	Storrs
Rapp's Poultry Farm	1004	1016.55	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	1026	1011.60	Texas
Crescent Farms	987	1003.30	Florida
George M. Heberer	990	1003.05	Florida
J. A. Hanson	985	994.60	Pennsylvania
J. A. Hanson	977	990.60	Rhode Island
J. A. Hanson	978	979.20	Storrs
George M. Heberer	973	967.60	Texas
Creighton Brothers	960	966.95	Hunterdon, N. J.
Booth Farms and Hatchery	968	964.55	Georgia
Hollywood Poultry Farm	1054	954.25	Georgia
Foreman Poultry Farm	953	950.35	Georgia
Bodine's Pedigreed Leghorns	1004	949.55	Central New York
Rochelle Egg Farm and Hatchery	973	945.90	Texas
George M. Heberer	947	931.20	Texas
Gold Spot Hatchery	896	930.95	Arizona
McCoon's Poultry Breeding Farm	973	930.85	Texas
Pinebreeze Farm	940	929.15	Florida
Foreman Poultry Farm	942	929.00	Hunterdon, N. J.

Twenty Highest Rhode Island Red Pens in Country to January 1

Owner	Eggs	Points	Test
E. B. Parmenter	1041	1102.15	Maine
J. J. Warren	1023	1076.15	Long Island
H. J. Hardin	1071	1073.10	Georgia
W. H. Wilson	1090	1060.85	Georgia
G. B. Treadwell	1027	1059.20	Maine
E. B. Parmenter	1012	1035.25	Long Island
L. D. Bartholomew	991	1033.00	Storrs
W. H. Wilson	1039	1032.40	Georgia
J. J. Warren	1035	1028.70	Georgia
J. J. Warren	1010	1025.25	Florida
J. J. Warren	1011	1023.55	Storrs
J. J. Warren	949	1016.65	Maine
J. J. Warren	1009	1015.85	Maine
J. J. Warren	1019	1012.00	Storrs
Missouri Valley Hatchery	933	1009.00	Missouri
Roberts Poultry Farm	951	1005.55	Storrs
J. J. Warren	963	1001.65	Texas
E. B. Parmenter	1010	1001.00	Paterson, N. J.
G. B. Treadwell	984	1000.65	Storrs
J. J. Warren	986	1000.10	Florida

Twenty Highest New Hampshire Pens in Country to January 1

Owner	Eggs	Points	Test
Colonial Poultry Farm	960	1002.35	Texas
James H. Horne	940	983.85	Storrs
T. J. Harrold	1005	981.85	Georgia
Williamson's New Hampshire Farm	911	933.25	Florida
George A. Pearce	954	927.80	Hunterdon, N. J.
A. J. Williams	926	920.05	Florida
W. G. Ashby	900	915.10	Arizona
C. D. Cummings	986	914.10	Georgia
Pine Mt. Valley Farms	960	897.10	Georgia
T. J. Harrold	900	886.25	Georgia
Williamson's New Hampshire Farm	859	872.00	Florida
James H. Horne	854	869.10	Maine
M. L. Estabrook	861	861.20	Maine
Joachim Breeding Farm	832	855.70	Long Island
Hubbard Farms	836	849.15	Pennsylvania
Pine Top Poultry Farm	914	846.70	Georgia
Rhodes Hatchery	854	839.85	Florida
A. L. Frees	821	828.55	Arizona
Gold Spot Hatchery	811	819.55	Arizona
Ned C. Willoughby	849	814.00	Florida

Twenty Highest Barred Plymouth Rock Pens in Country to January 1

Owner	Eggs	Points	Test
T. N. Wilcox	1070	1098.20	Georgia
Dryden Poultry Breeding Farm	927	919.50	Storrs
T. N. Wilcox	883	903.95	Florida
Fuzzydele Farms	890	892.90	Storrs
P. N. Hibbard	939	884.35	Storrs
David T. Cohen	868	880.55	Georgia
David T. Cohen	891	878.05	Storrs
J. W. Schaible	873	857.55	Hunterdon, N. J.
David T. Cohen	818	849.80	Arizona
Angus Urquhart	828	835.40	Storrs
Fuzzydele Farms	804	835.00	Central New York
David T. Cohen	797	825.95	Pennsylvania
Dryden Poultry Breeding Farm	833	816.05	California
Booth Farms and Hatchery	830	810.30	Georgia
E. B. Parmenter	800	807.65	Pennsylvania
Dryden Poultry Breeding Farm	787	801.65	Missouri
Dryden Poultry Breeding Farm	798	801.30	California
Broad Acres	763	790.35	Storrs
Dryden Poultry Breeding Farm	816	786.80	Pennsylvania
Booth Farms and Hatchery	749	770.10	Missouri

Twenty Highest White Plymouth Rock Pens in Country to January 1

Owner	Eggs	Points	Test
Albert C. Lawton	905	857.85	Storrs
Kalerok Farm	811	840.15	Rhode Island
Carter-Dunham Breeder Hatchery	861	829.55	Georgia
Carter-Dunham Breeder Hatchery	819	820.40	Texas
Airy View Farm	815	811.65	Hunterdon, N. J.
Drumm Egg Farm	801	811.05	Georgia
Carter-Dunham Breeder Hatchery	775	791.45	Storrs
Gene Garden Poultry Farm	804	773.55	Maine
John Spangenberg	770	751.15	Maine
Booth Farms and Hatchery	788	747.20	Texas
Alfred MacMillan	747	716.30	Texas
H. J. Zweier	741	715.15	Pennsylvania
C. W. Winkler	708	709.85	Oklahoma
McDonald Hatchery	687	701.90	Texas
Townsley Trapnest Farm	699	700.65	Georgia
Riley Poultry Farm	784	699.55	Michigan
Hillview Imperial Farm	721	697.90	Storrs
Drumm Egg Farm	711	694.80	Florida
Pay Streak Hatchery	713	692.15	Georgia
Colonial Poultry Farm	667	692.10	Oklahoma

Average Production in Each Test to January 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Dec.	Per Cent Mortality to Date
Georgia	1,300	60.69	58.05	22.94	2.30	5.23
Arizona	390	56.56	56.94	24.14	1.79	2.82
Texas	1,300	57.00	55.97	23.56	2.61	3.53
Storrs	1,300	56.61	55.96	23.71	1.15	2.61
Florida	1,248	55.99	54.85	23.49	1.44	2.64
Hunterdon, N. J.	650	55.04	54.19	23.61	1.69	3.23
Pennsylvania	1,027	54.11	52.89	23.47	1.85	3.50
Paterson, N. J.	169	50.59	49.91	23.66	0.00	.59
Rhode Island	546	47.47	48.39	24.45	1.09	3.48
Passaic, N. J.	1,014	48.71	47.20	23.23	1.77	2.76
Maine	975	47.64	46.16	23.23	1.74	2.97
California	650	45.53	44.46	23.42	.61	2.00
Missouri	780	42.41	43.73	24.74	3.46	4.48
Oklahoma	650	45.68	43.59	22.89	1.38	4.00
Long Island	1,131	42.62	40.94	23.04	.61	1.94
Western New York	884	37.01	36.65	23.76	1.58	2.59
Central New York	910	37.52	35.92	22.96	1.86	2.85
Michigan	780	36.66	34.39	22.51	2.30	6.53
All Tests	15,704	49.43	48.30	23.45	1.72	3.32

High Pen, Each Breed, in Illinois Non-Standard Test to January 1

Owner	Breed	Eggs	Points
Walter Swanson	White Leghorn	435	412.70
Belldear Hatchery	White Rock	347	351.45
Illinois State Hatchery	New Hampshire	345	344.75
Wallace Moody	Buff Rock	309	300.00
Mapleside Poultry Farm	Barred Rock	353	296.70
Belldear Hatchery	White Wyandotte	264	280.85
Illinois Hatchery	Rhode Island Red	235	230.65
Illinois Hatchery	Brown Leghorn	153	157.60
Berry-Ajax Hatchery	Black Australorp	143	132.90

High Pen in Each Breed, Vineland, N. J., Hen Test to January 1

Owner	Breed	Eggs	Points	Class
J. J. Warren	Rhode Island Red	341	370	Two-Year
J. A. Hanson	White Leghorn	340	367	Two-Year
Vaughn's Hatchery	New Hampshire	311	333	Two-Year
Eben Wood	Barred Rock	245	266	Two-Year
E. R. Rutter	White Rock	215	233	Two-Year
M. A. Dounay	White Leghorn	191	207	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	115	125	Four-Year
J. J. Warren	Rhode Island Red	62	66	Four-Year
Kwality Farm	White Leghorn	321	342	Mixed-Age
Schewegler's Hatchery	Barred Rock	202	214	Mixed-Age
Wene Chicks Farms	New Hampshire	169	183	Mixed-Age
E. B. Parmenter	Rhode Island Red	156	164	Mixed-Age
Quimby School	White Rock	129	130	Mixed-Age
Schwegler's Hatchery	White Wyandotte	115	123	Mixed-Age

High Pen in Each Breed, Vineland, N. J., Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	4318	4593	Two-Year
J. A. Hanson	White Leghorn	4135	4335	Two-Year
Eben Wood	New Hampshire	3522	3801	Two-Year
Eben Wood	Barred Rock	3525	3782	Two-Year
E. R. Rutter	White Rock	3519	3645	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	6707	7246	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	7640	8249	Four-Year
J. J. Warren	Rhode Island Red	7053	7574	Four-Year

High Pen, Each Breed, in Pennsylvania Hen Test to January 1

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	247	270.80	Two-Year
Schwegler's Hatchery	White Wyandotte	217	231.35	Two-Year
Crooks Farm	Rhode Island Red	205	223.75	Two-Year
E. B. Parmenter	Barred Rock	184	196.70	Two-Year
Claribel Henault	White Rock	175	187.30	Two-Year
Pine Top Poultry Farms	New Hampshire	156	166.80	Two-Year
Schwegler's Hatchery	White Leghorn	197	211.85	Three-Year
J. J. Warren	Rhode Island Red	134	145.65	Three-Year
R. H. Barteaux	White Leghorn	227	245.85	Mixed-Age
E. B. Parmenter	Barred Rock	198	214.50	Mixed-Age
E. B. Parmenter	Rhode Island Red	189	205.85	Mixed-Age
Fuzzydele Farms	New Hampshire	119	130.45	Mixed-Age

High Pen, Each Breed, in Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Lindstrom Poultry Farm	White Leghorn	3951	4200.25	Two-Year
Crooks Farm	Rhode Island Red	3830	4057.65	Two-Year
E. B. Parmenter	Barred Rock	3469	3595.35	Two-Year
Schwegler's Hatchery	White Wyandotte	3432	3521.05	Two-Year
Pine Top Poultry Farms	New Hampshire	3284	3431.10	Two-Year
Claribel Henault	White Rock	3324	3419.65	Two-Year
Schwegler's Hatchery	White Leghorn	6333	6638.25	Three-Year
J. J. Warren	Rhode Island Red	6088	6552.20	Three-Year

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NATIONAL

POULTRY DIGEST

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Vol. 3, No. 27 March 15, 1941

Shooting a Few Ghosts!

By O. A. HANKE
Mt. Morris, Ill.

Editorial from Hatchery Tribune

IT'S HAPPENING again! People are starting to talk. They want to know what the Poultry and Egg National Board is doing. The old familiar ghosts of misinformation, doubt, and indifference are being turned loose.

Let's do a little shooting—at the ghosts! They must not be given a chance to scare any more people.

Because there seem to be more ghosts of misinformation than of any other kind, let us aim at them first. Here is what came in a note the other day:

> "Hatcherymen are beginning to show concern over the lack of visible results from the Poultry and Egg National Board. They are getting anxious for something to be done and are wondering why more progress is not being made."

Here's the Program

What do hatcherymen expect from an annual budget of $30,000 to publicize the products of a billion dollar industry? Every hatchery contributor is getting a copy of the Poultry and Egg National Board Reporter, of which there now have been two issues, averaging about 5,500 copies each. Remember, the board manager's office was not set up until nearly November 1. Besides, the poultry press has carried articles

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Hatchery Tribune, February, 1941)

describing board activity which is based on a three-fold program of reaching the consuming public, as follows:

1. **The reading public**—Regular releases are sent to 400 metropolitan newspapers and several thousand country weeklies.

2. **The listening public** — Regular releases go to 400 home economics experts who are in charge of radio programs.

3. **The seeing public**—More than a thousand home economics specialists connected with utilities and manufacturers who stage cooking schools and demonstrations receive two releases monthly.

What more can Manager Huntington and Home Economist Mrs. Kathryn Bele Niles be expected to do with one secretary to share?

Because of certain conditions in the industry and the nature of the industry, Huntington is having to spend the best part of two months on producer and hatcherymen education meetings—out tracking down the ghost of indifference. If he doesn't get this one first thing, the financial support of the board won't even last long enough to get it well launched.

Check This Itinerary

This is a part of his December, January and February schedule. American Farm Bureau Federation meeting, Baltimore, Md.; Minnesota Baby Chick Cooperative Association meeting, St. Paul, Minn.; Farm and Home Week, University of Illinois, Urbana, Ill., Independent Food Distributors Association meeting, Washington, D. C.; special all-industry procurement meeting with Douglas C. MacKeachie, assistant to the director of the Defense Commission Division of Purchases, Washington, D. C.; Maryland State Poultry Council, Baltimore, Md., Indiana Agricultural Conference, Purdue University, Lafayette, Ind.; Pennsylvania Farm Show, Harrisburg, Pa.; Connecticut Poultry Association annual meeting, Hartford, Conn.; Farm and Home Week, Ohio State University, Columbus, Ohio; Poultry Products Short Course, University of Missouri, Columbia, Mo.

That brings us to two other ghosts—doubt and indifference. This is how they work:

You have an influential organization, but you ignore other organizations whose assistance you use when you need it, but you don't mention it in your magazine or newspaper. In that way, the public hears very little, if anything, about it and unconsciously assumes that it doesn't amount to much. Pretty soon the public starts asking questions, but you still ignore the organization. That's when the ghosts of doubt and indifference take charge.

Last fall when the National Turkey Federation needed publicity to help stimulate turkey consumption, it developed a cooperative arrangement with the National Board, even furnishing additional funds, and the results redounded to the good of both organizations.

Industry Groups Cooperating

Even so, comes an announcement from the New England Fresh Egg Institute of its advisory board meeting at Worcester, Mass., January 8.

"One hundred per cent cooperation with the program of the Poultry and Egg National Board was the central theme of the discussion," according to Sanford Alger, Jr., secretary-treasurer, New England Fresh Egg Institute, who acted as chairman of the meeting in the absence of President Christie, who was kept home by illness.

With every poultry organization and group in New England using the literature and publicity of the New England Fresh Egg Institute and the Poultry and Egg National Board, New England can do a job this spring which will again lead in the national campaign for poultry publicity, urged Alger.

Now turning to the I. B. C. A. News, official news organ of that association, we find an announcement of the 1941 Springtime Egg Festival. No mention is made of the Poultry and Egg National Board. No wonder hatcherymen are asking questions about what the board is doing. The I. B. C. A. claims to have in its membership the nation's leading hatcherymen. Why doesn't it use its official organ to tell them what other poultry organizations are doing — when it is of such direct concern as this consumer education movement?

The time has come when all poultry organizations need to work together for the great poultry industry. There is NEPPCO in the northeast — a great cooperating organization. There are the American Poultry Association, U.S. R.O.P. Federation, National Turkey Federation, Northwest Turkey Growers Association, Utah Poultry and Egg Cooperative — all of them joined in the National Poultry Producers Federation, in which the I. B. C. A. also maintains a membership. Consumer education and industry legislative work must now be done cooperatively.

We Have a Good Start

What the poultry industry has, with the budget of $30,000 to operate on the first year, is an excellent beginning, considering the organization problems of the poultry industry. It has taken many years and a great International Poultry Congress to build it. It's fundamentally sound in its organization. From 17 organizations, including the I. B. C. A., there are directors to run it. Its president is Herman Demme, a breeder-hatcheryman, who has held such responsible positions in New Jersey as president of the state poultry association and president of the state board of agriculture. The executive committee comprises the following men:

First vice president, Andrew Christie, prominent breeder-hatcheryman, Kingston, N. H.; second vice president, Clyde C. Edmonds, secretary-treasurer of the Utah Poultry Producers Cooperative Association, and vice president, Northwestern Turkey Growers Association; treasurer, Lloyd S. Tenny, business manager, Chicago Mercantile Exchange; secretary, Glenn H. Campbell, president, Campbell-Sanford Advertising Agency; N. R. Clark, vice president, Swift & Co.; and Hobart Creighton, partner, Creighton Bros., Warsaw, Ind.

Experienced Leaders Working

Its manager is Homer I. Huntington, a very capable but reserved gentleman, who pioneered consumer education of poultry products in New England through the New England Fresh Egg Institute. With him is Kathryn Bele Niles, who was director of foods and nutrition for the Institute of American Poultry industries during the years it was doing much of the consumer education work under the direction of such capable men as Paul Mandeville and E. B. Heaton.

Let's get back of the board. It needs money. Oh, how it needs money! It ought to have at least a hundred thousand dollars a year. Equitable methods of securing funds by commodity taxes are being developed, but it is unlikely that they will be set up fast enough to provide adequate support in 1941. Who in the industry has more at stake in consumer demand than the hatcheryman and chick dealer? Poultry and egg prices must be profitable, or people don't buy chicks.

So send your check today to L. S. Tenny, treasurer, Poultry and Egg National Board, 308 W. Washington St., Chicago, Ill. If you want the board to do a big job, send a big check. The trouble so far has been that the people who have talked about running full page advertisements in the Saturday Evening Post (over 3,000,000 copies weekly, with a cost of $11,500 a four color page per insertion) have contributed as though it were a small town country weekly. There can't be ads in national magazines on $30,000 a year.

This is a big industry. Let us start thinking big, doing big, and contributing big.

THE UNITED STATES NAVY, according to Washcoegg, uses powdered whole eggs as emergency rations, particularly in hot countries. Hermetically sealed tins, holding 2½ pounds each, are used.

Cooperative Promotions with Customers Bring Mutual Benefits

By H. R. SIMPSON

Reprinted from Feedstuffs

FEED store customers differ from those of most retail stores in that they buy materials to "process" into products which they sell. The feed dealer's problem is the marketing of feedstuffs and allied lines; the customer's problem may be disposing of turkey production to best advantage, or the sale of breeding stock or hatching eggs. From this situation, opportunities arise for co-operative promotions—plans carried out by dealer and customer jointly, which help both to increase sales. Any feed dealer can work out these projects, yet the opportunity is singularly neglected.

A good example of such teamwork in promotion was a parade float during the annual Pay Dirt Pow Wow at Boulder, Colo., last summer. Thousands watched this large annual parade. The Boulder Feed Store, of which Milton E. Tschiche is proprietor, worked with the R. G. Sutherland turkey farm, a customer. This farm, located near Boulder, raises upwards of 2,000 turkeys each year. While most of the crop goes to the processing plant, an important number of the turkeys is sold directly to the local Boulder market. The turkey specialist, accordingly, is decidedly interested in advertising his business to the general public.

Live Turkeys On Parade

The unique entry, which won a major prize, consisted of a truck, upon which bags of turkey feed were shown, and a trailer, which carried a rain shelter used on the turkey farm. Probably for the first time in history, a good-szied flock of turkeys participated in a community parade. There were between 200 and 300 birds in the shelter house. A big canvas sign on the side of the trailer announced, "The Pilgrims Had 'Em Only for Thanksgiving, and Now We Can Have 'Em the Year 'Round!"

Truck, trailer and the shelter house were furnished by the turkey grower. The Boulder store assisted the customer in preparing the stunt entry, and bags of feed from the store were on the truck.

For the feed dealer and his turkey line, a more ideal parade entry could hardly be imagined. That a well-known turkey grower, whose birds

Miller Publishing Company, Minneapolis, Minn.
(Feedstuffs, Nov. 23, 1940)

were on exhibit in the parade, was a customer, spoke volumes for the line. The live birds were an attention getter of extraordinary effectiveness. As for the turkey grower, the store's help was decidedly valuable to him in arranging a stunt which would advertise his farm and build his profitable local sales.

Buyer vs. Seller Philosophy

One philosophy of trade is that buyer and seller are fundamentally antagonists, each to be perpetually on guard against the other. When merchant and customer hold to this conviction, customer turnover is likely to be high. The more successful a merchant is in developing co-operative psychology with his customer, the more will the idea of conflict be forgotten. Customers will become partners and friends; customer turnover will be vastly reduced. The trick of finding ways to be partners with customers can be accomplished with good promotions which help the customer to sell, and help the store to sell, too. The Boulder parade entry did this. Other opportunities are numerous.

Fairs and shows present opportunities for feed merchants to work in co-operation with their customers, for example:

Poultry breeders of a certain district have a lot of enthusiasm, so the feed merchant works with some of them in planning a poultry show. The merchant gives a lot of help on the business end—in particular, getting a little fund together among business men; arranging for premises and publicity. He "throws in," too, by having an exhibit in the show. But he is far more than just an exhibitor—he is "one of the boys" behind the enterprise.

Dealers Should Take Initiative

There are many places where an annual poultry show is a traditional institution. But in many sections, there has never been a show. Aside from the county fair, perhaps, poultry breeders have no opportunity to "show their stuff" and find prospects for breeding stock and eggs. Well may a feed merchant take the lead, under such conditions, in developing interest in a show and in executing the enterprise.

Every so often, in most states, legislation is drafted in which both feed merchants and customers have a deep interest. When the merchant gets a group of feed buyers together in such a situation, he should realize that he will benefit in more ways than one. The task at hand is in defeating — or perhaps assuring the passage of—some legislation. But the by-product of good will and friendship may be even more important to the dealer.

Egg Marketing Plan

Marketing of surplus local egg production may be a co-operative promotion. Perhaps egg producers are very much dissatisfied with selling channels now open to them. If so, the feed merchant goes into the egg shipping business. If good generalship is practiced, the merchant will see to it that his enterprise appears to be what it is—a friendly gesture to improve conditions for poultrymen. And he will never let producers forget that, fundamentally, he has introduced an egg department as a service, rather than as a department from which large profits are expected.

The strategy is important. There are many cases in which egg buying has become a source of conflict and dissatisfaction. Fair minded producers won't expect the feed merchant to handle eggs for nothing, but they will be happier if the dealer keeps them mindful of the fact that eggs involve a lot of extra work and responsibility and that substantial losses, as well as modest profits, are often involved. The merchant who takes the position that eggs are basically a service, and he cannot continue to handle them unless producers give him consistent support, may be very wise.

Free Advertising for Customers

During the hatching season, a middle western feed merchant uses half of his newspaper space for small advertisements, classified style, of producer-customers who have hatching eggs or chicks for sale. The space given over to customers represents considerable expense to the merchant. A lot of tact is required in limiting the free space given to individual customers.

But the merchant realizes that, in a sense, every classified ad in his space is a testimonial for him. Obviously, the producer is one of his customers; and quite often a producer whose example carries a lot of weight.

Find ways to work with customers in promotions. The principle is absolutely sound. Good results are certain.

Value of a Male

A good male may sire 200 or more good pullets in a season. If this male is from a high egg production family and increases the egg production of the pullet just 10 eggs each, at 20¢ per dozen, he would be worth $33.33. If he increased the egg production of the pullets only one egg each, he still would be worth $3.33. The use of better sires is an excellent way to pass good qualities on to the offspring.

—R. Conolly, Michigan Farmer, Feb. 1, 1941.

Let's Produce Fewer Culls

By T. S. TOWNSLEY

Condensed from Smith's Chickagrams

FOR MANY years the emphasis in poultry keeping has been on culling. Cull the eggs, cull the chicks, cull the growing stock, cull the layers, cull the breeders — Cull! Cull!! Cull!!! This has been the theme song of most writers and speakers on poultry subjects for at least 20 years.

Now the pertinent question presents itself of what we can do with the culls.

Most dealers nowadays refuse to buy culls, or will take them only at very low prices. In many cities an inspection service is being installed or considered to outlaw the sale of cull poultry.

There are, of course, two general types of cull chickens, especially in hens. This is an unfortunate situation that needs clarification to prevent the confusion that sometimes exists. When the honest poultryman speaks of a cull hen, he probably means a bird that does not lay a sufficient number of eggs to make her profitable to keep. She may be, and in many cases is, a bird of excellent market type, and would be considered a No. 1 market bird by the poultry dealer. On the other hand, a high producing hen that would rate No. 1 with the poultryman might be listed as a cull by the market man if she were sent to market at the end of the laying season in thin flesh, with pale shanks and in poor feather.

Difference in Aims

Most of the advice on culling has been directed toward the elimination of unproductive birds, but in market terminology, the term cull applies to birds that are undesirable or unfit for human consumption. Thus, the producer wants to eliminate the unprofitable birds, and the market man wants to avoid the unfit specimens, which are very commonly also unhealthy, or diseased.

It probably would be well if producers would quit using the term cull to designate their poor layers, and call them low producers, or some such term, and leave the word cull to denote poor market birds.

At any rate, one of the big problems facing the poultry industry is what to do with the vast number of birds that are culled out each year and that are unfit for sale. Many of these birds are diseased or wormy, while others are thin and unthrifty. In any case, they represent a big loss to the producer, because even if they can be sold, they bring only a very low price. They are also a definite handicap to poultry consumption, because anyone purchasing birds of this type is pretty sure to be disappointed with his product.

The Smith Incubator Company, Bucyrus, Ohio
(Smith's Chickagrams, December, 1940)

The fact is that there is no satisfactory way to dispose of chickens that rate culls from the market standpoint, and the only practical solution is for the entire industry to cooperate to try to produce fewer cull birds.

When to Cull

Culling should certainly start with the baby chicks. Anyone who has tried to raise chicks in batteries knows that a small weak chick will either die, or be nothing better than a cull at the end of the brooding period, and that it is better not to waste feed on chicks of that type. When the baby chicks are carefully culled, and the culls destroyed, the only loss is the chick itself, but if an attempt is made to brood the cull chicks, the final loss includes the feed and brooding cost, as well as the chick. During the growing period, culling should be continuous and rigorous, keeping in mind that the sooner the culls are eliminated, the less expensive they will prove.

The important thing is to produce fewer cull chicks. This means more rigorous selection of the breeding stock, a better job of blood-testing, rigid selection of hatching eggs, and the best possible job of incubation.

The best possible job of brooding should be done to keep the birds healthy and vigorous. Crowding, filth, and improper feeding are responsible for most of the culls that show up in a flock started from well selected chicks.

Diseased birds had better be killed, if the trouble is chronic. Thin birds should be fattened, if possible, before being offered to the buyers.

Poor layers can be detected before the end of the laying season and should be sold while they are in full feather, and not be thrown onto the market when they are in a molt.

Improvement in the quality of market poultry is undoubtedly one of the major steps in increasing the consumption of broilers, fryers, and roasters.

¶ ACCORDING to classical legend, the geese of ancient Rome aroused the defenders of the capital when it was attacked by the Gauls at night. History (say residents in the Regent's Park, London, area) is repeating itself. When British planes patrol the skies, the geese in Regent's Park are quiet; but when Jerry is aloft, the geese make such indignant noises that the entire neighborhood is wakened.
—Eggs, London, England, September 11, 1940.

Poultry is Big Business Now

By VERLO BUTZ

Condensed from Prairie Farmer

Editor's Note: The following article appeared in Prairie Farmer's Centennial Number, which was published in celebration of its hundredth anniversary. It gives an interesting account of poultry-keeping before the turn of the century.

CHICKENS were brought to America by the early colonists and became important as a source of food in both the country and the early small towns. In the early days, the industry was a farm flock enterprise, and eggs were definitely a seasonal food, even in the country. The abundance of wild game and of cheap meat animals held down the value of the domestic fowl.

As American industry grew, as cities appeared, as transportation and refrigeration developed, farmers began to turn their attention toward poultry and egg production. The growth of the poultry industry in the last half century has been spectacular.

The first issues of Prairie Farmer in 1841 contained rather limited material dealing with the raising of poultry and the production of eggs. But such short stories as were published show that even then there was growing interest in poultry and the production of eggs on more of a year-round basis.

Editor John S. Wright was preaching the doctrine of poultry breeding in the April 1841, issue when he wrote:

"If your hens and cocks have not been changed within a few years, you should procure eggs-to-set from your neighbor who has the largest and best fowls. Breeding in-and-in is as deteriorating to fowls as to animals."

This was a move against the wanton inbreeding of poultry, which was prevalent on the majority of farms a century ago. So far, however, little thought had been given to the value of poultry breeding.

In the May issue of 1841, a paragraph was given to the description of unusually large birds grown in the East. A certain Mr. Wood of Haddonfield, N. J., had crossed "blue" and "black" breeds and had obtained a bird "weighing only 19½ pounds when killed and dressed." The eggs were said to weigh six to the pound, and the correspondent concluded: "In raising such fowls there is both pleasure and profit; and when ready for market there will be no lack of purchasers."

The Prairie Farmer Publishing Co., Chicago, Ill.
(Prairie Farmer, Jan. 11, 1941)

Wright published the results of a feeding experiment in the November 1841, Prairie Farmer. An experiment, he said, had lately been tried on geese, feeding them turnips cut very fine, "and soaked in a trough with water." The result was that six geese weighing only 9 pounds each when shut up, weighed 20 pounds each after about three weeks on this feed alone.

Malt, the article commented, was an excellent feed for geese and turkeys. Grains were preferred for the sake of economy, but did not fatten as fast as malt. Oats ground into meal and mixed with a little molasses and water, barley meal mixed with sweet milk, and boiled oats mixed with malt all were rated as excellent for fattening poultry. Other results of the experiment set forth the findings that if corn was fed to fowls, the grain should be crushed and soaked in water or boiled first. "It will thus go much farther and digest easier," according to the report. It was found that hens often would lay in the wintertime when fed in this manner "especially if well sheltered."

In the August, 1842, issue appeared a method for preserving eggs —perhaps the forerunner of one of the present-day storage methods.

"Take half a bushel of quick lime," the editors suggested, "and put it in a tub, and slack it with hot water until it becomes the thickness of cream; then add 3½ pounds of salt and ½ pound of cream of tartar. Stir them together; store your eggs in kegs or barrels and pour in the preservation when cold until the eggs are entirely covered."

This was supposed to be sufficient for a barrel of eggs, and a barrel of eggs as packed at that time was about 90 dozen. Theoretically, if the cask were kept tight, the eggs would keep for 18 months, or perhaps two years.

In the July, 1843, issue, appeared this suggestion:

"Hog's lard, fed to hens, will cause them to lay. It should be mixed with dough. A piece as large as a walnut, fed to a hen, after her nesting has been broken, will cause her to commence laying at once. If this is true it is of some value, as hens are apt to prove rebellious about this season of the year."

One thing is sure, this practice would get rid of quantities of surplus lard!

"Chickens Can Be Controlled"

In October, 1843, a Prairie Farmer reader in Maine wrote that he was against advising farmers to keep poultry if the fowls were allowed to run at large, destroying gardens and doing other mischief. "It has been found that chickens can be controlled at very little expense, for they will not fly over a fence made of long strips of board, well-sharpened at the top." Birds would not be able to alight on the sharp points and could in this way be kept without trouble.

Further, the discussion said, "The enclosure should be so situated to enclose a grass plot, for hens are very fond of green grass and grass together with some sour milk and pulverized lime will sustain the fowls well in summertime. It is no use to do anything unless we are prepared for it. There must be a hen roost placed near by, say 20 feet square, double boarded, plastered and made warm for them to lodge in and lay their eggs, the inside divided and properly boxed. A small lad, eight to 10 years old, can tend 20 to 30 hens."

First Housing Plans

From time to time, plans and suggestions for housing poultry were published in Prairie Farmer. Building plans sent in by a reader and appearing in the November, 1844, issue, called for a roosting room (a laying room), and a feeding compartment. Accompanying the sketch was the following:

"Most people who keep poultry, especially in the West, derive no benefits from them except in the summer, and then but an inconsiderable one, while they find the poultry a considerable expense during the winter. In addition, they lose one-half to three-fourths of the stock during the year because they lack equipment.

"Eggs on our market brought during last winter 25 cents per dozen, and even at that price there were not enough eggs to fill the demand. If fowls are well kept they will consume much less feed and will lay during the whole season."

In January 1846, the editors, although concluding that they knew little about the success of artificial incubation of chicken eggs, published plans for an apparatus designed to hatch chicks by steam heat. Concerning chicks, they said, "Chickens when first hatched, it is said, weigh several ounces more than the egg at first. How do they gain weight? By the air, we suppose."

Novel Preserving Method

One farmer from Michigan wrote that he was in the habit of preserving his eggs by placing them in a small basket, then dipping basket and eggs in boiling hot water for a moment. This process was repeated two or three times, after which the eggs were placed, small end down, in bran, salt or oats. "This will keep them perfectly fresh and good."

By this time, the paper was pointing out that farmers living near large towns, or near navigable rivers, could hardly turn their attention toward a better branch of business than poultry and eggs. By 1846, the egg trade in Cincinnati threatened to rival the pork trade of that city, changing the city's nickname to Eggopolis instead of Porkopolis. The year before, total egg business in Cincinnati had amounted to $187,428. During the year eggs sold as high as $22 per barrel in New Orleans and as low as $3 for the 90 dozen.

A Mrs. Dakin wrote in the January, 1847, Prairie Farmer that from 30 hens she had gathered in little more than eight months, a total of 3,532 eggs and had raised 200 chickens. Valuing the eggs at one cent each, and the chickens at a shilling per head, she computed a return of $60.32, which she considered a pretty good interest on the 30 hens, feed and shelter. Mrs. Dakin gave her management as follows:

"Provide a warm, dry shelter during the winter. Feed with oats soaked in water 12 hours before feeding. Burn clam shells and pound fine; let them have as much as they can eat. Feed oats and rye ground, two bushels of oats to one of rye."

Carry out this plan, she advised, and you will have eggs from January to December.

In the April 1847 issue, editors of Prairie Farmer went to some length in suggesting means of storing and packing eggs for shipment and storage. They insisted that eggs to be packed first of all be of good quality. A fat, full egg, they said, would be more likely to keep well than a poor one, and what is more they should be packed when fresh. They explained that the yolk is inclined to settle in the shell, and eggs should be packed with the small end down.

Just what happened in the development of the poultry industry, as far as numbers of fowls and eggs were concerned, prior to 1880, when the first poultry enumeration was included in the yearly United States Census, is clouded in uncertainty.

First Poultry Census

On June 1, 1880, there were 102 million chickens on farms throughout the United States. This compares with 234 million in 1900, 360 million in 1920, and the 429 million in 1940. In 1880, there were nearly 10 million chickens in Illinois, more than 5½ million in Indiana, about 4 million in Michigan and 3½ million in Wisconsin.

According to the first census on egg production in the United States, 457 million dozen were produced in 1879. Nearly a billion-three hundred thousand were reported in 1899, and upward of three billion dozen in 1939.

Turkey Production Grows

In 1900, there were something like six and a half million turkeys on farms in the United States; in January, 1940, the total had mounted to eight and a half million.

There were three times as many chickens on farms in 1930 as in 1880. This represents an increase of 200 per cent, but poultry production, as measured by the number of chickens on farms, has little more than kept pace with the nation's growth in population. The picture is much different, however, when we examine figures on egg production. Six times as many eggs were produced in 1929 as in 1879. Egg supply per capita increased from 9.14 in 1880 to 21.91 in 1930; chickens on hand per capita increased from 2.82 to 3.09 birds.

Shortly after 1870 the first Standard of Perfection was developed. Hatching in incubators developed on a large scale about 1890. In 1916 the International Baby Chick Association was organized.

Eggs had been preserved by immersion in limewater and by storing in ice houses, but as facilities became available, cold storage came into more general use as a means of preserving surplus production of the spring months for consumption in summer and fall. One of the greatest helps and economies in the marketing of eggs was the introduction of the 30-dozen case to replace the early method of packing in a barrel.

No story of the poultry industry of the nation would be complete without mention of the work done by the Land Grant Colleges and the United States Department of Agriculture along the lines of hatching, feeding, breeding, management and marketing of poultry and poultry products.

Research Saves the Day

This research in the poultry field has spelled the feeding of balanced rations, breeding for higher egg production, culling the poor producer, effective means of controlling diseases and pests in the poultry flock, economical housing and brooding, and practical flock management. Expert advice to the poultry producer today is no farther away than the county agricultural agent, and USDA and state college of agriculture bulletins cover completely all problems of poultry production. Thousands of young men and women over the country are receiving valuable training in poultry keeping through 4-H Club and vocational agricultural class work.

Don't Discount Chicks Before They Are Hatched

I had always heard that thunder, blastings, or the rumble of trains would affect an incubator and hatchability. A recent experience enables me to refute that belief.

On December 20, we had the new and unpleasant experience, which came to many thousands of New Englanders, of going through our first earthquake. There was some damage, such as glasses broken and plaster cracked, but nothing very serious happened. On December 24, there was a heavier one which caused considerable damage. We lost three chimneys, glass was broken in many windows, fireplaces in the house were split, plaster was down all over, there were four good sized cracks in the incubator cellar foundations, and there were many other evidences of the severe shaking. According to the papers, the epicenter of the first quake had been Ossipee, some 12 miles away, and the epicenter of the second had been Tamworth. I am sure it was right under Pine Top.

Neither of the quakes, nor the some 20 smaller ones since, seemed to bother the hens any. Production increased slightly, and there was no great commotion among them.

Naturally, I was glad that only a relatively small part of our incubator capacity was being used. When I opened the doors of one of the setting units, I was very upset to find that over a hundred eggs had bounced out of the trays and were on the floor. The balance of the eggs was all topsy turvy in the trays. I was so sure that the hatch was completely ruined that I notified customers of my misfortune and asked them if they would be willing to postpone their orders three weeks. Some of them said they would and others said they could not. The papers sent reporters here, and I told them in all good faith that the hatch was completely ruined, for I did not see how it was possible for eggs to go through two good sized earthquakes and still hatch. My friends wrote me telling me how sorry they were. I went about my business planning on how to make up for the loss.

I had two hatches in the incubators that had been through both quakes. The first hatch had been in the machines 12 days when we had the first quake, and 16 days when we had the second one. The other hatch had been in the machines five days when we had the first quake and nine days when we had the second. Surely, I thought, these were critical periods.

Imagine my surprise when I took off the first hatch and found it to be 82 per cent of all eggs set. One week later I took off the second hatch and this was 82.5 per cent of all eggs set. I have followed through on the chicks and they are coming along well with no unusual mortality.

All of this has meant several things. First of all, it put me in a peculiar light with my customers and caused some confusion with bookings. Secondly, it has made me decide that good stock properly bred can withstand quite a bit, and that perhaps some of the things we have always considered as undeniable truths are not so true after all. From now on, come hurricanes, floods or earthquakes, I refuse to discount my chicks before they are hatched.

—W. C. Goodson, Poultry Tribune, March, 1941.

Analyze Your Costs!

By **FRANK D. REED**
University of Maine

Reprinted from New England Homestead

THE PRODUCTION of hatching eggs here in New England, particularly for the large hatcheries in or near the Del-Mar-Va broiler area, is in its hey-day. Here in Maine, at least one-half of our commercial poultry raisers are in this specialized business. For 10 years, the output of New England hatching eggs and baby chicks has increased by leaps and bounds.

A measure of the size of this enterprise is revealed by the official figures on breeding birds tested for pullorum infection. In Maine, last season, there were 356,000 birds tested—20 per cent of the hen population of the state; in Massachusetts 573,000 birds – 19 per cent of the total hen population; Connecticut, 336,000—14 per cent; and New Hampshire, 782,000—61 per cent of all the birds in the state! Remember, nearly every one of these birds was tested because the owner expected to sell hatching eggs.

Facing Lowered Premiums

As a natural result of increased efficiency of production, and because more and more people have jumped into this specialized phase of poultry keeping, there has come a lowering of the "premiums" paid for hatching eggs. These premiums of 10 cents, 15 cents, and 20 cents per dozen above market eggs look very attractive. But how many have actually attempted to figure out how much extra it costs to produce hatching eggs over market eggs?

The purpose of this article is not to register the complaint that hatching egg premiums are too low or to build up a case for higher premiums. Let us avoid wishful thinking about the possibilities of higher premiums, for there must be retained a proper relationship with market egg prices, otherwise, we attract too many table egg producers into the hatching egg game. The purpose of this article is solely to urge every poultryman to sit down with a pencil and paper and indulge in a little very profitable mental exercise in figuring out whether or not he is making or losing money on his hatching eggs.

Many producers have found a considerable extra income through hatching egg production. Unquestionably, however, many others are actually and unwittingly losing money on their venture. Every producer of hatching eggs has the alternative of going back to the production of market eggs exclusively, and our analysis of costs should start with market egg prices as a base.

How to Figure Costs

This problem of figuring costs will be much simplified if we approach it from the angle of "extra" costs over what we would have if we produced table eggs only. My estimates in the table below include only those costs which we can measure directly. But the poultryman must consider several other factors as well. What is the "cost" of the extra "wear and tear" on the hens when they are mated up? How many less eggs do we get? How much more mortality? How much less is the meat value of breeders after we get through with them? How much extra labor is involved? I bring up these questions, but I shall not attempt to answer them.

TABLE 1—Extra Costs of Producing Hatching Eggs

Cost Per 1000 Birds	
Pullorum testing at 4 cents	$ 40.00
Depreciation, males — 140 birds (2 sets) at $1	140.00
Feed males in breeding pens (70 birds at 2 lbs. feed per week) ..	140.00
Extra cost of breeder ration at 15 cents per cwt. (50 lbs. mash per breeder)	75.00
Share in interest on investment 7% of $360 total interest charge	25.00
Share in depreciation on buildings and equipment 7% of $285 total depreciation	20.00
Share in labor costs 7% of 2000 hours at 30 cents	60.00
Total	$500.00

These costs are measurable costs only—they do not include "wear and tear" on breeders resulting in lower egg production, lower meat value, and more culls and mortality.

The estimates in the table below are my own, they will not necessarily apply to any individual, but to the best of my knowledge they represent average costs here in Maine. One very important item of cost which many poultrymen overlook is the approximate 7 per cent reduction in housing capacity occasioned by the presence of male birds in the pens. This results automatically in a 7 per cent increase in overhead (interest and depreciation) and labor chargeable to hatching eggs. Another way to look at this would be that we lose the profit from 70 hens – for we could just as well have 70 extra hens as 70 cockerels. Either way, it figures out nearly the same. These estimates are on the basis of the 1,000-bird flock mated up the year round.

Comparing Costs and Premiums

Once we obtain a figure for total costs, we have a basis for figuring cost per dozen hatching eggs. By dividing the number of hatching eggs we have sold or expect to sell into this total we can obtain our cost per dozen. This figure, when compared to the extra money received over market egg price (the "premium") will tell us whether the hatching egg venture has been a profit or loss. Obviously, the more hatching eggs we sell per breeder, or the longer we ship, the lower is our

New England Homestead Co., 29 Worthington St., Springfield, Mass.
(New England Homestead, Feb. 8, 1941)

cost per dozen. From this it is evident that the "premium" per dozen eggs is, itself, not any more important than the length of the shipping season and the number of eggs sold.

The table below shows the number of hatching eggs which must be sold to meet the costs involved at various premiums. The table also shows the length of shipping period which would be required to produce this number of eggs. This assumes a production of saleable hatching eggs of 40 per cent (60 per cent actual production) and assumes further that all eggs salable as hatching eggs are so sold. "Premuim" means price over what the eggs would bring on the farm as market eggs. Thus a payment of 10 cents over top Boston, express paid by the hatchery, and some 22 oz. eggs accepted, might actually mean to the Maine wholesale producer a 15 cent premium.

TABLE 2—Number of eggs sold necessary to pay added production costs

Premium (Cents)	Sales Necessary to Meet Costs (Doz.)	Length of Shipping Period (Weeks)
	1,000-Bird Flock	
10	5,000	23
15	3,333	15
20	2,500	11.5

Hatching egg producers, study your costs carefully. While a 10 cent or 15 cent premium may look attractive, have you any assurance that you can sell hatching eggs, except in the "short" season or for more than a few months? Perhaps you will find that hatching egg production is returning you a tidy extra income, or possibly you will find that you would be better off selling only table eggs. At any rate, you ought to know!

Prune-Fed Turkeys

W. A. Forbes, Napa, Calif., who does many interesting and ingenious things with dried fruits by way of making them into confections, marketed 110 turkeys for Thanksgiving which had acquired superb quality on a ration which included from 25 to 33 per cent of cull prunes, ground up pits and all. The turkeys, which he hatched early, last February, grew thriftily, and all the hens exceeded 12 pounds and the toms were all over 20 pounds.

The turkeys were not fat, and came out of the oven with small loss of weight, but juicy, and fine flavored. Mr. Forbes has developed special customers for his turkeys, handled in this manner.

—D. M. Rutherford, Pacific Rural Press, Jan. 11, 1941.

Eggs For the Smile of Health

The wearing down of hard human heads by the drip, drip of information is resumed.

You would like to have the beauty of buoyant health; bright eyes, springy muscles; lustrous hair; the attractive animation of zestful well-being. You do not want to be a droopy and faded wallflower of life.

Then you should see to it that your diet includes at least one egg a day.

Who says so? Scientists, dieticians, physicians, a great many careful investigators and experimentors.

They do not tell you this in the exaggerated words of the nostrum peddlers and the cure-all promoters. These egg-recommenders are scientists. They deal in well-proven facts.

But what they say means that eggs can do for you what the cure-alls only promise.

Eggs are Nature's pep capsules—truly great protective food.

They won't work a presto-chango miracle and make a new man or woman of you immediately. But in Nature's good time they will rebuild you.

Eggs supply quick protein energy, for body building. They build sound teeth. They contain iron which your body can assimilate. You don't have to gag over sulphur and molasses; instead enjoy eggs, and get the result you hoped sulphur and molasses would bring. Build your resistance with eggs. Get vitamins and minerals from eggs—the pleasant and natural way.

Farm readers should put a solid foundation under a sound poultry industry by having their egg a day, and by telling the world.

The hen's cackle, when she lays a "pep capsule," dies away in a rural atmosphere.

It is your job to carry that cackle to city homes.

—Pacific Rural Press, Jan. 25, 1941.

4-H Stamp on Eggs

Georgia housewives are learning they don't have to worry about the quality of store-bought eggs with the 4-H stamp. That's the result of the state wide Egg Marketing-Leadership contest. Contestants follow the latest methods of marketing eggs, including candling, grading and packing. The boys and girls keep daily records on their home flocks of hens. All eggs are candled, graded and packed in cartons at home, and later stamped with a special 4-H inscription. They are marketed through the local store of a grocery chain, which is sponsoring the contest.

—Kansas Farmer.

Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

March 1 – The last two months have been the kind that I have often read about but have experienced only once before. Today, however, is like spring. In fact, March has come in like a lamb. Egg production is up; so is fertility. Walter Buss told me this morning when I took the hatching eggs to him that my eggs were hatching 62 per cent. This hatchability is not to be sneezed at, when one considers that the hens are 2, 3, and 4 years old. The eggs are averaging 27 ounces to the dozen, and Walter says the chicks look like young ostriches. Albert Wyss has several hundred chicks from my eggs and he tells me that livability is high. There must be something to this idea of "Pete" Knandel's and Dr. Kennard's about breeding from old hens.

March 2—Harold managed to get the north house cleaned this morning before it rained so hard that all outside work came to a standstill. This afternoon we shelled corn with the power sheller in the block house feed room.

March 4—The frost is coming out of the soil and it means much slush and high waters. Everything around the ranch is damp with the exception of the dwelling house, and even here, water is seeping in the basement. The humidity in the egg room has well nigh put the air guide on the blink, registering 100 per cent relative humidity at present. I am sure I don't know what it is all about, but I do know there are lots of dirty eggs. I can determine that at a casual glance.

March 7 – Harold cleaned the boards in the barn this afternoon. That puts us on easy street with the week's work, if it doesn't rain. The weather forecast was for snow, but the sun kept shining all day. After Donnie came home from school, we docked three lambs. Cutting off little lamb's tails is about like taking candy away from a baby – neither one can do much about it. We tie a string tightly around the base of the tail to prevent bleeding. Then—zip—it's off. The lamb stands around wondering what it is all about.

March 9 – We had figured on doing some corn shelling today, but because of a slight freeze last night, it was decided to clean out the bull barn. Donnie has a 10 months old Jersey bull calf and a sassy Shropshire ram in the wooden garage. The rubbertired wheelbarrow will plough through well nigh anything, but it does push easier if it can stay on top of the soil. Although the truck patch has had many tons of droppings during the past few months, Harold has started all over again with stable manure.

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(Everybodys Poultry Magazine, March, 1941)

March 12—Well, I bought a farm yesterday, at least that is what Ernest Taylor 'phoned me last night. About a half-hour after he called, I had occasion to visit the local hot-stove club and bless my soul, I was greeted with, "I hear you bought a farm." Yes, Verne Chamberlin and I bought the farm, but neither one of us has ever set foot on it. We just drove down the road at 40 miles an hour, decided it was what we wanted and told Taylor to buy it right. It sounds fishy, but it is a fact.

March 13—At 12 o'clock last night I went out to se if all was well with the stock. But it was not well. The stove in the block house was stone cold. I dipped a corn cob in the cod liver oil can and used it to restart the fire. It was half past one this morning when I went to bed. After all, the loss of a few hours sleep is a small matter when one's stock is at stake.

March 15 – The Ides of Mrach, and on Friday too. Last night we had the snow the weather man has been talking about for the last three days. Cold, damp weather today, and we burned five hens in the block house stove. This has been the hardest winter I have experienced in a long time. I think the mortality of the stock has been the heaviest that I have ever experienced.

March 16 – Three north houses were cleaned this morning. Donnie took care of the stock while Harold did the cleaning. The pasture is almost covered with droppings, at least 20 tons to the acre. While this work was being done, the Old Man went down to Craighton on the 3-C Highway to see Tom McKee about a five-ton order of ground corn cobs.

As a rule, the elevators in this area burn the cobs. Sometimes folks haul them home for fuel, but the great majority are burned. And I don't approve of such a policy. They should be returned to the soil, in my opinion. I like to have ground cobs on hand. They are good to scatter on the boards after cleaning, to put in the bottoms of the manure carriers, and, since our shavings are "all," as the natives say, we are going to try them as cow bedding. They will make a hard bed, but, if spread deep enough, there may be some spring to them.

March 19—It is going to be chick brooding time in a few weeks, so I brought home a few bales of peat moss. I didn't ask Harold Edwards about the price. We talked about everything else but the cost of it. Due to this European war, I know the price is going to be high enough, too high for practical purposes. But ignorance is bliss. The drain cock in the first floor of the barn has been dripping during the last few days, so I bought a new one. I think the old one had a hair check due to the cold weather. Anyway, it was cheaper to replace it than to have a wet floor around the fountain.

March 20—A typical March day, sunshine, rain and then several snow storms this afternoon. We managed to get the barn cleaned this morning and the manure scattered on the pasture. The frost is all out of the soil and there is no bottom to it. Even the sod in the pasture was exceptionally mushy, but the rubber-tired wheelbarrow stayed on top. I think we were the only folks in the community that were hauling.

After the night feeding, Harold repaired all of the nests while I packed eggs. The nests are getting rather hard wear these days. More eggs—more money. And I can use the where-with-all to a good advantage.

March 22 — Sunshine and snow, with the thermometer at 14 degrees this morning. Last night at midnight it was 28, but no chances were taken. All water pipes were drained. It's nice to wake up in the morning and know that all is safe.

The estimated tonnage of manure in the pits is 4 tons. It was the wettest manure we have ever hauled from the block house.

March 25 — I am beginning to think about chick time, although it is a month away. This morning Earl Wharton brought in a couple of loads of sand and gravel to spread around the brooder houses. He hauls three yards at a load, so a yard to each house ought to make a good covering around and about. I don't know exactly how much sand and small stone a pullet will eat in six months of girlhood, but there isn't very much gravel left by fall.

March 28 — I am frank to admit that the Old Man, well, he ain't what he used to be. Verne and I worked until 1 a.m. But it was 2:30 when I went to bed. This morning I just couldn't quite cut it. After I ate dinner I was completely exhausted, worn to a frazzle, as Lum Ed'ards says. Slept for two hours sitting up right in the chair. Harold cleaned the boards in the west house, hauling the manure on the pasture. The frost is well nigh out of the soil and this means a soft surface. But the rubber-tired wheelbarrow rolls along like nobody's business.

March 29—I finally nerved myself to do two disagreeable jobs today when in town. First I paid my personal taxes. Once a year I realize how poor I am, and that is when I list my taxes. At tax listing time all the ego leaves me; I just don't have any property that is worth a continental. I never make a mistake and list too much for I refer to last year's carbon copy. I am gradually getting it down to the point that it is only going to be a question of time when some one will owe me money.

March 30—Well, it is the end of the week and also the month. After the regular bath period, I sat down to check over the week's work. For the first four days we were really behind, but now we are ahead of the game. Not only were all the boards cleaned and the droppings spread on very soft ground, but the east and west house were cleaned again today. It took two wheelbarrow loads to finish covering the pasture, so the two houses were cleaned the second time. Next week all the manure, including that from the cows, will be hauled to the new farm. There are 12 acres of grass land to be covered and, at 20 tons to the acre, I think there will be some hauling to do.

Feeding Cockle to Chickens

By G. F. HEUSER
Cornell University

Reprinted from Feedstuffs

IN the feeding of ground cockle to chicks, no effect was observed on the average weight at six weeks of age until more than 2 per cent of ground cockle was eaten. However, characteristic leisons of cheesy material in the mouth and under the tongue were present even in the lot receiving .25 per cent of ground cockle. The severity of these leisons increased wtih the amount of ground cockle fed.

In the lot which received unground cockle ad libitum, there was no effect upon the weight of the chicks, even though they consumed the cockle to the extent of 3.5 per cent of their food intake. The only mortality up to six weeks of age was in the lot receiving 4 per cent of ground cockle.

In another experiment, larger

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amounts of cockle were fed to older birds. At 10 weeks of age, after cockle had been fed for four weeks, there were differences in weight in proportion to the amount of ground cockle fed from 5 to 20 per cent of the ration. All lots lost heavily the first week, but seemed to build up a tolerance afterward.

The severity of the characteristic mouth lesions, decreased respiration, and decreased heart rate were in relation to amount of ground cockle fed. The feces also became more moist with the increasing quantities of ground cockle. Again, as with the young chicks, the unground cockle fed ad libitum had no apparent effect upon the birds, even though the consumption amounted to 5.9 per cent of the food intake.

Cockle is usually found in wheat. The percentage runs from none at all to about 2 per cent. The average cockle content, in areas where cockle commonly occurs in wheat in New York State, is about .5 per cent. On the basis of total food intake, the wheat would constitute not more than 30 to 40 per cent of the ration. Hence, the amounts consumed under normal conditions would be extremely small.

It would seem that if the cockle is consumed in the whole form, it does not have the harmful effects of ground cockle. Very large amounts of whole cockle were consumed without effect. Even though the ground cockle showed harmful effects, the quantities necessary to do this were considerably larger than would be consumed under average conditions.

Preventing Greenish Ring in Hard Boiled Eggs

Many people ask about the greenish ring in the albumen when eggs are hard boiled. This ring is unattractive, but is perfectly harmless. It is formed by the uniting of the iron in the yolk with the sulphur in the white to form an iron salt—ferrous sulphide.

The higher the temperature to which an egg is heated and the longer the time during which an egg is submitted to a high temperature, the more of this union takes place. If the egg is plunged into cold water immediately after cooking, formation of the greenish ring is greatly lessened.

One of the best methods of boiling eggs is to put them into boiling water, lower the heat under the container so as to keep the water at simmering temperature (185 degrees Fahrenheit) and let the eggs cook four minutes for soft boiled eggs. For hard boiled eggs, let the water simmer 15 to 20 minutes, then plunge into cold water.

—John H. Vondell, Featheredfax, January, 1941.

The Cod Liver Oil Situation

By **RAYMOND T. PARKHURST**
Massachusetts State College

Reprinted from New England Homestead

THE war has definitely affected the economics of poultry and animal production by very materially disturbing the source of a very important feed ingredient—cod liver oil. Normally, we import at least 70 per cent of our cod liver oil from Norway, England and Germany. Over 7,000,000 gallons yearly came from Norway and England. From New England and Canada we obtained only about 1 per cent of our requirements. As long as the fishing trawlers of the European countries are needed for sweeping mines, little cod liver oil will be produced.

It is reported that England is importing some cod liver oil from Newfoundland to supply her needs. With Germany blockaded, therefore, we can not depend upon European sources for cod liver oil. In the last few months, some cod liver oil has been allowed to leave Canada for the United States. Most of these shipments and those from Iceland and Newfoundland will be absorbed by the drug trade at prices over twice the 1939 prices and beyond what poultrymen can afford to pay.

The feeding cod liver oil that is coming in, or is on hand in storage tanks, is mostly finding its way into fortified cod liver oil or blends which sell as fortified feeding oils.

Vitamin D Sources

Cod liver oil has been a most important and popular source of vitamins A and D in poultry rations for many years. In recent years, however, several other more potent sources of vitamin D than cod liver oil concentrate have been used for fortifying cod liver oil and for various fish oil blends. Oils from tuna fish, sword fish and skipjack especially have proven to be cheaper sources of vitamin D than the concentrate of cod liver oil. About two-thirds of our supply of these high potency oils comes from Japan and about one-third is produced in California. Quite recently, sterols, which have been obtained from animal tissues, have been shown to be of good value for fortifying purposes. These should not be confused with irradiated dry yeast and similar products in which ergosterol is activated, as these are not recommended for poultry feeding. Their use in the animal field,

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when economically feasible, may release fish oil products for use in poultry rations.

In order to increase the vitamin A potency of certain fish oil blends, shark liver oil has come into extensive use. Booms in the shark catching industry are reported from Florida, California and British Columbia. This oil assays from 50,000 to 200,000 units per gram.

Several oils of domestic origin from fish such as sardines, menhaden herring, rose fish and salmon are now being used extensively as carrier oils for the high potency liver oils and the D-activated animal sterols mentioned above. The amount of these domestic fish oils produced is at least three times as great as the cod liver oil previously imported.

Limited Supply

In general, feed manufacturers and poultrymen have available a limited supply of straight cod liver oil, a good supply of sardine oil and an ample supply of fish oil blends or feeding oils. There are also various fortified products such as fortified cod liver oil, fortified sardine oil and fortified feeding oils.

According to the tentative definition of the Association of American Feed Officials, a vitamin D feeding oil is either fish or fish liver oil or a blend of two or more of the following: vitamin D concentrate, synthetic vitamin D, fish liver oil or edible vegetable oil. The vitamin potency shall be stated in A. O. A. C. chick units of vitamin D. Undoubtedly, there will be large volumes of the feeding oils used.

If feedmen and poultrymen will pay enough for "feeding oils" from reliable manufacturers to justify the proper processing and testing of them, excellent results can be obtained. On the other hand, it must be realized that some of the oils used now for blending purposes do not assay the same with chicks as they do with rats and unless the chick test is employed faithfully and accurately and guaranteed, potency is unreliable and the product may be a source of trouble. Unfortunately, it is the poultryman who suffers first because his chicks, layers, or breeders do not do well. Therefore, a quality product is safest and its worth is dependent upon the reliability of its guarantee.

Artificial Irradiation

The manufacturers of sun lamps and electric power companies have recently started to arouse interest among poultrymen in artificial irradiation of poultry. The new S-4 lamp which is now on the market is claimed to be as effective as was the S-1 type 500 watt quartz mercury vapor lamp, and it is much less expensive. The lamp itself costs about $8.50 and a suspension unit, about $11.00 more. The lamp is rated at 1,000 hours of normal life and the transformer and lamp together consume about 120 watts. One unit would normally be used for 100 birds, 200 four to 12 weeks old chicks or 40 turkeys.

Studies made by D. C. Kennard and V. D. Chamberlain at the Ohio Agricultural Experiment Station using the S-4 type of sun lamp showed consistently good results in six experiments during two years and gave positive evidence that this type of lamp was an effective method of providing vitamin D to chickens as compared to cod liver oil.

They found that chicks spent a large proportion of their time under the hover during the first four weeks and that it was more convenient to provide the vitamin D in the mash by means of cod liver oil during that period.

A test with turkeys up to nine weeks of age showed equally good results regardless of the source of vitamin D. The poults were in confinement.

Experiments with both Leghorns and Rhode Island Red pullets, covering a nine months' period, also showed that exposure to the sun lamps for four hours daily was equally effective as cod liver oil in regard to egg production, maintenance of body weight, rate of mortality, fertility and hatchability. They conclude that the S-4 type sun lamps can be used effectively and with economy to provide the vitamin D factor for growth of chickens and turkeys, for egg production, and for the production of hatchable eggs. As the lamps do not supply vitamin A, they suggest that special precautions must be taken to make sure that ample vitamin A is provided from other sources.

Not Practical or Economical

Assuming that equally good results can be obtained when the vitamin D is supplied by sun lamps, it does not seem to the writer that their use under New England conditions is either practical or economical. For each unit of either 100 layers, 200 four to 12 weeks old chicks, or 40 turkeys, the poultryman must invest $18 to $20. The bulbs are expected to last 1,000 hours so their renewal cost is .85 cents per hour. The rest of the parts are given a life of 5,000 hours of operation at an estimated cost of .20 cents per hour, making a total of 1.05 cents per hour. The bulb and equipment operate at 120 watts.

If three cents per kilowatt is taken as a representative rate, the cost per hour of electricity is .36 cents. The total operating cost is, therefore, 1.41 cents per hour, without including the cost of wiring. It is possible to obtain fortified oil having 400 A. O. A. C. chick units of vitamin D for 40 cents per pound or less. If a sun lamp will take care of 200 broilers from four to 12 weeks of age, the cost of operating it four hours daily for eight weeks (224 hours at 1.41 cents per hour) would be $3.16.

The 200 broilers of the American breeds or Barred Red cross would consume about 10 pounds each or 2,000 pounds. Four pounds of 400 unit fortified oil would supply an adequate amount of vitamin D and would cost only $1.60 as compared with the $3.16 for the use of the sun lamp. To justify the consideration of the sun lamp as a source of vitamin D, the fortified oil would have to cost 79 cents per pound, or nearly double the present price.

Less Favorable

For egg production, the figures are even less favorable to the use of lamps. If one sun lamp is operated for 100 layers for four hours daily for a year the number would be 1,460 and, at 1.41 cents per hour, the total cost would be $20.58. One hundred Rhode Island Reds confined indoors would require about five tons of feed for the year. To supply their vitamin D requirements, four pounds per ton of the 400 vitamin D oil would be required or a total of 20 pounds. Therefore, at 40 cents per pound the cost of the fortified oil would be $8.00, as compared with $20.58 for the cost of using the sun lamp. In other words, the fortified oil would have to cost $1.03 per pound to justify the use of the sun lamp, if the production and hatchability were the same.

In the Ohio tests, the production averaged 7.9 per cent better in the Rhode Island Reds and 4.7 per cent better in the Leghorns for the nine month's period. There is some question as to whether the increased production and hatchability from the use of S-4 type lamps can be depended upon to make up the difference between the cost of their operation and the cost of using fortified oil. It would seem that the optimum number of layers per lamp needs to be determined as well as the minimum effective length of exposure.

Adequate Supplement

Many poultrymen are wondering about the vitamin A content of the ration. In the Ohio experiments just mentioned, there was no supplemental source of vitamin A to that already in the ration, as sun lamps do not provide any vitamin A. There were no indications of vitamin A deficiencies. The all mash chick starter contained 50 per cent coarsely ground yellow corn and 5 per cent dehydrated alfalfa leaf meal. The all-in-one complete laying and breeding mixture included 20 per cent coarsely ground yellow corn and 5 per cent dehydrated alfalfa leaf meal as sources of carotene, the precursor of vitamin A.

There is little evidence to show that more than 300 U. S. P. vitamin A units per 100 grams of feed or 1,816 units per pound are needed for chicks, except in the case of a disease outbreak. For layers, 600 units per 100 grams, or 2,724 per pound, is enough under normal conditions. If long or unsatisfactory storage or feeding conditions are anticipated, twice these amounts probably should be included.

From a practical viewpoint, there is little need, under our eastern poultry conditions, for the 3,000 vitamin A unit per gram potency which the fortified oils have carried in recent years. Normally, a "400D" fortified oil of not more than 2,000 U. S. P. vitamin A units per gram potency will adequately supplement the usual carriers of carotene in the feed such as yellow corn and alfalfa meal, even if there is a storage of the feed during distribution of two months. For feeds mixed weekly and fed fresh, a potency of 1,000 units of vitamin A per gram will often be adequate for a fortified oil. No matter what vitamin potency the mash carries normally, in case of an outbreak of colds, coccidiosis or other diseases, added oil to that in the mash is advisable and the sooner it is fed after symptoms appear the more effective it will be.

In conclusion, there is no need for poultrymen to get panicky about the cod liver oil situation. There should be no immediate added cost of feeds, as most feed prices have already advanced with the increase in the price of oils.

As reliable fortified feeding oils of lower vitamin A potency become available in increasing amounts, there could even be a lowering of mash prices. However, if anything happens to cut off Japanese liver and oil supplies, an acute shortage of vitamin D could be expected within six months time, and prices of oils and feeds would advance accordingly.

Paxton Likes Tunnel Nests

Condensed from Checkerboard News

JOE C. PAXTON of Warsaw, Indiana, says he's just plain lazy, and that's why he built long "tunnel nests" in the new laying house in his remodelled barn, instead of the customary individual nests that most poultry houses have. He says he can clean out these long "tunnels" in about one-quarter the time it would take him to clean out the same amount of ordinary nesting space, and that's reason enough for anybody who likes to take things easy.

However, we don't believe him. That is, we don't believe he's lazy.

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(Checkerboard News, November, 1940)

But we do believe he has hit on an idea (whether it came out of his own head, or whether he picked it up somewhere) that is going to help him cut down on the work of looking after a flock, and therefore on the cost. He gave us six additional reasons for liking these long "tunnel" nests, in preference to ordinary individual nests.

These nests run the full width of the house—40 feet—under the windows. They are nothing more than two long tunnels, one above the other. Each tunnel is 13 inches high and 22 inches deep (from front to back). The top (or roof) is built on a slope, to keep the birds from roosting on it. The lower tunnel is right on the floor of the house, while the upper tunnel has its own floor of 1-inch shiplap.

Nests Built in 8-Foot Sections

The floor of the upper tunnel and the fronts of both tunnels are built in 8-foot sections. When it comes time to clean out, the floor boards of the upper tunnel can be tipped on edge — they aren't nailed —which dumps all the nesting material down into the lower tunnel. Then the whole front of the lower tunnel can be lifted out (8 feet at a time) and the whole thing cleaned out with a scoop shovel.

The doors on the front of the tunnels are made a little less than 8 feet long. This leaves an opening at the end of each 8-foot section for the birds to hop in and out. It also provides ventilation, to keep the nests from becoming too hot in warm weather. In order to improve the ventilation still further, the doors are fitted rather loosely, with a crack along the top.

Reasons Why They're Better

As stated above, Mr. Paxton has more than the one reason for liking this type of nest. He says they are better than individual nests for seven different reasons:

1. First and foremost, they can be kept clean with less time and effort.

2. The birds don't crowd each other while laying. Even if two birds want to lay side by side, there is plenty of room for both.

3. With the provision he has made for ventilation, he says they are cooler in hot weather than ordinary nests.

4. The nests are dark, and hens seem to like a dark place to lay.

5. Because of less crowding, there is less breakage of eggs in the nests.

6. Because the nests are dark, there is less danger of the birds eating their eggs.

7. He likes ground corn cobs for nesting material, and ground cobs work better in this type of nest than in individual nests.

Paxton's pullets seem to like these long tunnel nests just about as well as their owner does.

Wash the Windows

Do you wash the windows of your laying house? If you do, you are one out of a hundred. We have visited some 500 flocks this fall and although actual records were not kept, we do not believe over 5 flocks had clean windows in their laying house. You may laugh at this and remark about the foolishness of cleaning the windows of a chicken house, but it is not foolishness. It is a good sound practical procedure.

Sunshine is valuable to the birds for health and is absolutely essential for health and vitality of chicks. It supplies vitamin D and other essentials so necessary for poultry health. It is our cheapest disinfectant and germ killer. Sunshine is the missing link that insures larger winter egg production, stronger shelled eggs, better hatchability, and eggs of greater food value.

Experimental work developed the use of cod liver oil or other fish oils as a good substitute for sunshine in the supplying of vitamin D, but recent work has shown that even a small amount of sunshine along with cod liver oil gave even greater results. We do not have too many sunshiny days in the winter time, and when we do, the rays are weak, but let us take full advantage of any that are present.

Sunshine is valuable. If glass only lets in 10 per cent of the ultra violet rays, let's get this 10 per cent. If glass substitutes let in 90 per cent of the rays, let's get all of this 90 per cent.

A test by the U. S. Bureau of Standards showed that a glass substitute that let in 24 per cent ultra violet rays after 3 months of use let in 40 per cent after washing. An hour's time in washing windows, we believe, is time well spent.

—R. Conolly, Michigan Farmer, Feb. 15, 1941.

Ferrets Cause Small Riot

Six ferrets recently were responsible for a disturbance at Jersey City, N. J., in which two police forces, the Railway Express Co., a crate of chickens, a crate of ducks, several private citizens, and the above mentioned ferrets were involved, according to the New York Times.

Placed in a truck with the fowl, the ferrets escaped, attacked the chickens and ducks, evaded the driver and local police, and required the attention of trained dog catchers, properly equipped, before they were placed in a wire cage and carried to their destination.

Casualties listed were an injured bill by a duck, loss of a comb by a rooster, and a complete loss of temper by all men concerned. According to reports, the ferrets thoroughly enjoyed the brief period of freedom.

POULTRY RESEARCH

Inoculation for Coccidiosis

Coccidiosis Control by inoculation was attempted by T. B. Charles and associates, at the New Hampshire Experiment Station. The investigators concluded that if birds under the climatic conditions prevailing in New Hampshire can be housed in the late fall free from "chronic" coccidiosis they have a good chance to escape infection before late spring or summer. (N. H. Bulletin 319).

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1941.

Egg Propagation of Turkey Pox Virus

A strain of turkey pox which seemed to differ from types previously observed, in that it produces in chickens a lesion of longer duration than that produced by fowl pox, was studied by F. R. Beaudette and C. B. Hudson of the New Jersey Agricultural Experiment Station.

Compared with the strain of fowl pox used at the New Jersey Station, says the report in Poultry Science (Vol. 20, No. 1), the turkey strain produces far more severe local and systemic reactions, and also provokes a higher percentage of secondary head lesions.

In comparing the turkey pox strain with other viruses, it was found that canary virus seems to protect chickens against pigeon virus but not against turkey virus. It also appears to produce very slight immunity against fowl virus. Pigeon virus protects chickens against canary virus and also confers a high degree of immunity against turkey and fowl viruses. Both turkey and fowl viruses protect chickens against the four viruses.

Fowl Paralysis Vaccination

Vaccination against fowl paralysis was attempted in several different ways by Dr. H. Hartwigh. His report in the German Jl. of Inf. Dis. of Dom. Animals records that all of these attempts were unsuccessful.

—Carl H. Schroeder, Everybodys Poultry Magazine, February, 1941.

Laying Test Mortality

Mortality at the two New York State Egg Laying Contests shows a slow, but distinct, downward trend. During six years it decreased from 25.3 to 20.3. R. C. Ogle, in Cornell Bulletin 394, records that 63 per cent of these losses were caused by pickouts, internal layers, ruptured yolk and various phases of the neoplastic diseases — fowl paralysis, tumors, big liver disease — this latter disease complex accounting for the largest number of deaths.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1941.

Total Egg Weight and Hatching Power

Large egg size depressed hatchability in tests conducted at the Kansas Agricultural Experiment Station by H. M. Scott and D. C. Warren, says Poultry Science (Vol. 20, No. 1). Small egg size was linked with poor hatchability in one year's (1939) tests, but in another year (1936) the average hatchability records of females in the small egg group exceeded those of all other groups.

The percentage hatchability for hens producing eggs in which the weight of the white was approximately twice that of the yolk was greater than for hens producing eggs containing relatively large yolks or relatively large whites.

Hens producing relatively large eggs (3.95 per cent of body weight) tend to have lower hatching records than do individuals laying smaller eggs in relation to their body weights, according to the findings of these tests.

Legume Silage for Chickens

The Tennessee Agricultural Experiment Station reports very favorable results from the feeding of legume silage made from alfalfa, red clover or sericea (Tennessee Bulletin 172). The molasses method of making the silage is recommended.

On the basis of three years' work, the following advantages are claimed for silage feeding:

1. Greater zest in eating and more feed eaten per day.
2. Increase in weight as compared with the controls not fed silage.
3. Better physical condition, as determined by appearance, weight, egg production and postmortem examination.

There were no unfavorable effects on egg quality, in terms of flavor, color of yolk, or firmness of white.

—L. E. Card, Poultry Tribune, March, 1941.

Distillers' By Products in Poultry Rations

Two distillers' by products—distillers' dried solubles and special distillers' dried grains — were found to be satisfactory as supplements in poultry rations, under certain conditions, by H. J. Sloan, Minnesota Agricultural Experiment Station, according to a report in Poultry Science (Vol. 20, No. 1).

Distillers' dried solubles may be used to supplement a ration moderately deficient in riboflavin, but special distillers' dried grains is low in riboflavin and does not make a satisfactory source of that nutrient.

The protein of special distillers' dried grains appeared to be relatively incomplete, but satisfactorily comprised up to 12 to 15 per cent of the total crude protein for growing chicks or laying hens. Distillers' dried solubles gave satisfactory results when used to supply riboflavin, using levels up to 7 per cent, which would supply approximately 12 per cent of the total crude protein.

In a ration for growing chicks, distillers' dried solubles produced satisfactory growth when substituted on an equal basis for dried skim milk.

Gas Brooders

Gas Burning Brooders, when equipped with a larger burner-head, proved satisfactory during cold weather. In tests conducted at the New Hampshire Experiment Station, (N. H. Bulletin No. 319), the gas consumption during the 12 week brooding period was 310 lbs.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1941.

Confinement vs. Range

Confinement vs. restricted or unrestricted range has been subjected to 11 years of continuous, exhaustive study by Dr. L. Weinmiller, University of Munich, Germany. The results are briefly reported in the German Poultry Journal (Vol. 43, No. 33). Since the tests cover such a long period and so many flocks, the findings deserve serious consideration.

It was found that birds on cobblestone yards required 14 per cent more feed "out of the bin" than birds confined to the house. A saving in feed consumption – that is "feed out of the bag"—was effected as follows: unlimited pasture 7 per cent; limited pasture 23 per cent; unlimited oats and barley stubble 36 per cent; unlimited wheat stubble 78 per cent.

The greater saving of feed on limited pasture over unlimited is interesting. Highest production, however, was obtained from the confined flocks and those given restricted range.

The data available does not permit one to determine to what extent the better results in production and, in the case of young stock, of growth canceled or outweighed the saving in feed. Anyway, such figures would be subject to correction before they could be applied to our conditions, because in Germany labor is cheap and feed is high, relatively speaking, while in this country labor is high and feed cheap. Of course, aside from what we might call imponderable, there are other factors that have to be taken into account; f.i. the effect of environment upon health.

In this connection, Dr. Weinmiller claims that fowl paralysis disappeared in some flocks within a year's time after placing the young stock on clean, unrestricted range. Maybe it did; but this reviewer feels it would be well to look into other directions, too, for an explanation of this phenomenon.

The circumstances which prompted these elaborate investigations are interesting. German delegates to the 1927 World's Poultry Congress at Ottawa, Ontario, toured Canada and the United States. They were surprised at the extent to which intensive and semi-intensive methods of poultry production were practiced in these countries, in spite of the abundance of available and comparatively cheap land. They could not conceive that under these circumstances anything but unrestricted range could be good management, yet they felt that there might be an economic justification for it. Hence, this experimental inquiry, which yielded a wealth of interesting slants and details which space does not permit to discuss.

—Carl H. Schroeder, Everybodys Poultry Magazine, February, 1941.

Turkey Every Day

Reprinted from U. S. Egg and Poultry Magazine

TURKEY meat by the ounce or pound, or whatever amount the consumer wants, is a new way in which the traditional holiday bird may now be merchandised. Through this new outlet, the large toms, which are usually on hand at the close of the holiday turkey deal, may soon move to market in a convenient form that may fill a long-felt want on the part of producers, distributors and consumers in every salary class.

This new idea in marketing turkey meat was suggested by T. C. Byerly of the poultry department of the University of Maryland and was developed by James M. Gwin and Norman G. Paulhus, both of that department. During the past year, these men have devoted considerable effort to the problem of better market outlets for large sized turkeys. In the course of their work they have develpoed two products which offer promising possibilities for more profitably disposing of many of our large surplus toms.

Turkey Sandwich Loaf

The first, and probably most important, of these products is a turkey sandwich loaf made from deboned turkey which is pressed and cooked in regular cold meat molds. The yields received from the experimental birds indicate that this product can successfully compete in price with boiled ham and other high quality sandwich meats.

It is reasonable to assume that this new product will be a welcome change in families where lunches are packed. Lunch counters in drug

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, December, 1941)

stores and similar places may find this loaf adapted to their needs, while other uses may include picnic lunches and cool summer snacks.

Turkey "Cocktail Companion"

The second product is turkey "cocktail companion" or turkey hors d'oeuvre. This product resembles the sandwich loaf in size and shape, but is more highly spiced and is dry enough to be sliced to tissue paper thinness, with a smoked turkey taste.

The preparation of both loaves consists of skinning and deboning the dressed turkeys; lining the open mold with the skin; and arranging the meat and spices. The edges of the skin are then drawn together forming a complete covering for the meat before the mold is closed. Cooking is regulated according to the size and kind of loaf being prepared.

From an industry point of view, the merchandising advantage of this product lies in its appeal to the consumers who purchase relatively few whole turkeys but may use a large amount of turkey sandwich meat, purchased in their neighborhood delicatessen store or meat market, in quarter and half pound quantities.

The Respiratory System

The purpose of breathing is to deliver oxygen from the air to the blood stream, and to carry away from the blood stream poison, such as carbon dioxide. Since every organ of the body is composed of cells, and each cell must breathe, it can be seen that the respiratory system is most intimately associated with the circulatory or blood system.

The respiratory system of a chicken differs greatly from that of any other farm animal. In all true mammals, including humans, the lungs operate as a set of bellows—air is drawn into the lungs at each intake of breath, and forced out at each expiration. In the chicken, however, part of the air actually passes through the lungs into air sacs, then is forced back through the lungs. The air sacs are strategically located throughout the body, and when filled, assist the bird in flying, or "taking off."

Since chickens have no sweat glands, and their kidney waste is expelled in solid form as urates instead of liquid as in mammals, the breathing rate of chickens is much faster, to expel the excessive waste moisture. It has been estimated that 100 adult chickens exhale from 3 to 4 gallons of water every 24 hours—thus at once the importance of adequate ventilation is demonstrated.

—Cliff Carpenter, American Poultry Journal, March, 1941.

VIEWS OF THE EDITORS

Surplus

If by "surplus" is meant overproduction, there surely is none of it. This column pointed out in the January issue, 1940, that recent figures showed there were 3.1 hens per person of U. S. population, compared to 3.8 chickens per person 10 years earlier—a shrinkage of 18 per cent. The Census returns, now being released, for the 16th census of the U. S. (1940), carry some amazing figures. Iowa, one of the big poultry states, shows a loss of approximately 4 million head, compared to the figures of the 1930 census. Illinois reports 17,846,507 chickens in 1940, against 22,081,902 head in 1930.

Kansas, another big egg state in the West, shows a drop to 12,493,551 chickens on farms in 1940, against 19,127,922 head in the 1930 census. There has been a supposition that there was more poultry in the eastern states, supplying the winter egg market with fresh eggs. Maryland shows a loss of 600,000 chickens, Delaware a loss of 500,000, Vermont a loss of about 80,000. The separate returns for the states are just coming through, and of the sheets at hand, Rhode Island shows 351,551 chickens in the 1940 census, against 304,733 in 1930. But what is a gain of 50,000 chickens compared to a loss of approximately 8 million in the states of Iowa and Illinois? Goods still move interstate.

These figures do not add up to "surplus." They look more like a liquidated industry that has only one way to go from here, and that is upward. Although a great many farmers feel that the times are out of joint, it would seem that if they proceed to build up flocks this year, they are doing wisely.

—Frank L. Platt, American Poultry Journal, March, 1941.

Do We Eat Enough Eggs?

When meals are poor, points out the Consumers' Guide published by the USDA, they are usually shortest in the "protective foods" – milk, fruit, vegetables and eggs. Yet these are the foods richest in vitamins and minerals, it states, and advises that if you must stint, stint last on these.

If all the members of your family are to have a good diet, continues the Guide, that diet should include at least 4 to 5 eggs per week for children and growing boys and girls under 19 years of age, and 4 eggs per week for adults. On this basis, the mother of a family of five will need to include 2 dozen eggs or more per week in the foods required to provide them with a well-balanced diet.

—Nulaid News, January, 1941.

Counting on Wickard

President Roosevelt, in his annual message to Congress in January, said, with regard to the farm program: "We are definitely maintaining the principles of parity and soil conservation."

The specialized poultrymen of the country might complain, with full justice, that they have never enjoyed "parity prices," and there is little likelihood that they will, as a part of the present farm program. Most all figures and data we have seen show the egg producer at a disadvantage during the last eight years.

"Parity" means that prices of farm products are maintained at or very close to a price that is used as a base when conditions were stable and farm purchasing power was good or "in balance" with other prices. Now, under the present program, we have a policy of parity loans for grain growers but not for poultry. It is true there is some offset in the Surplus Marketing Administration (SMA) program, both through the stamp plan and open market purchases, but it is more of a help for the small farm-flock owner than it is for the specialized poultryman. These parity prices maintained under the SMA program are much lower than those for the grain loans, so there is no comparable parity for poultry. What parity there is, is based on "U. S. prices" which means a low average, which aplies mainly to general farm conditions and not the specialized poultrymen of both coasts.

We can arrive at no other conclusion than we have for the past eight years, (and without wanting to be critical of an otherwise helpful program) that the specialized poultryman is the victim of rank injustice at the hands of his own government. We are hoping that the new Secretary of Agriculture, Claude Wickard, will see the justice in our position. We believe Mr. Wickard has his feet on the ground and will try to correct this inequality.

He should also keep in mind, as we understand he does, that an equitable distribution of farm products is America's number 1 problem and that we can lick it with the proper cooperation between government and industry, particularly the distributors.

We are criticizing basic law and conditions—and not the administration of present laws.

We recognize that much of the fault lies with the Industry itself. There can be no "parity prices" for specialized poultrymen until we have a set of figures for this specialized industry and uniform grades, so that comparable prices can be related to parity. This can be had by passing the Coffee Bill. This push must come from outside of Washington.

It seems too bad that there must be new laws to correct the inequalities of old laws—but that's the case. Like many others in 1933, we tried to be honest with ourselves when it came to the impossibility of controlling poultry production. We have been penalized ever since for not "going along." The only thing left to do is to pass this new legislation. If we don't, the long-term future is very much in doubt.

—Poultry Item, March, 1941.

Government Control

The price that the producer receives will become more and more dependent upon the policy of Government. So long as the Government can carry a surplus of eggs, or butter, or wheat, or corn, the Government has a whip hand in the control of prices. There are farmers who would like a $2.25 @ $2.50 a bushel price for wheat, as toward the close of World War 1, but it should not be overlooked that at that time, governments had not invented such controls as now exist. If the grain market today should move up through the Government "loan value," the Government could sell wheat, for its supplies hang over the market. This is the other side of the pretty picture of bountiful magnanimity of the Government in pegging prices for the benefit of agriculture.

There are other controls which could also be applied. We are living in a new day when political policy is an important factor in the making of prices, and those who anticipate that prices will rise in a reckless manner, as the result of an expanding war boom, should reflect that all of the governments of the world today are "social minded" and have large controls over the economics of their peoples, regulating prices and markets, taxing the earner, distributing goods to the needy, the underemployed, and the unemployed.

—Frank L. Platt, American Poultry Journal, March, 1941.

An Unusual Brooder House

Is there a perfect colony brooder house? We think we have it. It is the result of many trials and years of work. We now have 16 of them, and if I were to build a brooder house tomorrow it would be like these. Many have seen it and have copied it with equally satisfactory results. The size of these houses is 6 x 10 x 12 feet. Double pitch roof running north and south the long way of house. Door in center of south end, three feet wide. No window in south end. Large window in each side, just front of center made to tip in at top, or to take out entirely, with baffle boards at sides to keep out wind when it is tipped in at top for ventilation in colder weather. Shutter 2 feet wide, at eaves in back end, hinged to let down in hot weather. House is of rough boards, covered with heavy roofing felt. With small size coal brooder stove, we can grow chicks in this house at any below zero weather we ever have. When the back is down, both windows out, and that big door open, it is a summer shelter with air from all sides. Even in mid-winter, the door can be open during most days to let in real sun.

Many troubles come from baby chicks crowding in the sun from south windows. In this house the sun shines right under the hover first thing in the morning and last thing at night. No crowding to the corners. They go where they belong and you do not have to push them around every night after dark.

This house can be used with any kind of brooder made, with the best of success. It is as near fool-proof as a brooder house can be made, and the cost is low.

—Eben Wood, Poultry Tribune, March, 1941.

Public Reaction to Smoked Turkey

At an exhibit in the patio of the Department of Agriculture in Washington, the public was given an opportunity to taste and comment on small samples of roast smoked turkey, cured by the Bureau of Animal Industry and cooked by the Bureau of Home Economics. The reaction was as follows:

Liked it very much	138
Satisfactory, but not especially liked	64
Disliked	5
TOTAL	207

Of various comments made, the following are noteworthy:

Very nice as a cured product but for me it does not take the place, or compare favorably, with fresh turkey. Tastes quite similar to cooked cured smoked ham.—W. C. H.

Very tasty. More of an appetizer than entree. I prefer unadulterated TURKEY taste. Has "ham" taste.—J. R. C.

Twenty-six persons reported that it tasted like ham, several mentioning finer grain. To six it resembled tongue; to three, Canadian bacon; one, mackerel; one, chicken; one, spiced beef; one smoked mutton. Miscellaneous comments mentioned "very tender," "raw taste," and "too salty." Most persons preferred the white meat to the dark.

—H. L. Shrader, The Extension Poultry Husbandman, December, 1940.

Smoke-Flavoring Turkey and Poultry

By E. Y. SMITH and J. C. SCHOLES
Cornell University

Condensed from a Bulletin

WHEN the early settler killed the wild turkey and roasted it over an open fire, he added a tasty tang of smoke to the natural deliciousness of the meat, and he enjoyed smoked turkey. While smoked turkey and poultry meats have been known for centuries, they have only recently been publicized as the delicacy that they are. This is partly because the recipes for smoking have either been handed down in certain families through past generations, or developed by individuals in recent years, and held as trade secrets.

This lack of competition may have helped to keep the cost of the product to the consumer high, but the chief reasons for its expensiveness have been the loss of weight during the processing, and the costliness of the processes followed. It is not unusual for smoked poultry and turkey meats to retail at from $1.25 to $1.75 a pound, and this price restricts its use to only a special clientele.

One can now produce the smoky flavor in these meats at a relatively low cost, and it is now practical for any turkey producer to supply this product at a price within the reach of the average consumer.

The three main reasons given for smoke flavoring and curing turkey and poultry meats are:

1. The preservative influence of the curing enables the producer to hold carcasses for a considerable time without spoilage.

2. The flavor of the meat is supposed to be improved by curing, but this is a matter of opinion and depends upon personal tastes. Many persons consider the flavor to be improved, but to others it seems almost impossible to improve on the natural deliciousness of a high-quality turkey correctly roasted.

3. The curing process changes the flavor of the meat. It produces a new and appetizing delicacy that the smart hostess may serve as regular sandwiches, or as those dainty sandwiches and hors d'oeuvres. It makes a good meal for the family at any time of the year, but it never will take the place of the regular oven-roasted turkey. It makes its own place because of its delectable flavor.

Methods Used

One of two general methods usually is used in smoke-flavoring and curing:

Cornell University, Ithaca, New York
(Cornell Extension Bulletin 446)

1. Curing in a sugar and salt brine, and then smoking, using hardwood.

2. Processing in a brine in which the salt has been smoked or to which so-called liquid smoke has been added.

The advantages claimed for the first method are that meat smoked long enough and at relatively high temperature is ready for consumption without further cooking, also, that the actual smoking produces a darker color and increases the keeping quality of the product.

The disadvantages are that the muscle fibers of birds that are thin, or as much as two or three years of age, are tough and stringy. This method may also cause a serious loss in weight due to dehydration and loss of fat that drips away in the smokehouse. Losses in weight of 40 per cent or more have been reported as resulting from the smokehouse treatment. This loss may be minimized by folding the skin of the neck and fastening it with the wings so as to save the fat that would otherwise drip out and be lost during the smoking process. The neck skin should not be so arranged until it has gone through the curing solution and is ready for the smoking period.

The advantage of curing in smoked-salt brine without further smoking in regular smoke is the low cost of the process without any loss from the original weight. In fact, there is usually a gain of about 7 per cent. In the opinions of some persons, the flavor of the meat smoke-flavored without actual smoking is equal or superior to that processed by the smokehouse method.

In either method, the flavor may be varied by adding spices, wine, or other condiments to the brine. In the smokehouse method, flavor may be influenced also by the kind of wood used. Green hardwoods are used. Apple or hickory usually is preferred, though smoke from corncobs has also been used. In fact, the possibilities of varying the flavor of these meats are unlimited. While many problems must be solved before one can recommend the "best method," the brief studies at the Department of Poultry Husbandry at Cornell and elsewhere justify the recommendation of the following procedure as being practical and worth consideration.

Ingredients for Curing Solutions

Some of the ingredients often used and recommended for curing solutions are of doubtful value, and only a few are really necessary.

Salt, sugar, and saltpeter are the necessary ingredients. The salt preserves the meat through its astringent action and prevents the development of putrefying bacteria. Unfortunately, it also tends to harden the muscle fibers and to absorb water from them. Sugar is used to counteract this dehydrating and toughening action of the salt and to keep the muscle fibres moist and tender. It also combines with the salt to produce a desirable flavor and to act as a preservative. Saltpeter is used in small amounts for its preservative properties and because it helps in the retention of the natural color of the meat. Spices, wine, and other condiments may be added to the brine solution or rubbed over the carcass after it is removed from the brine or after it has come from the smokehouse.

Four kinds of curing mixtures were used in the Cornell studies.

1. A mixture recommended by the United States Department of Agriculture, consisting of 6 pounds of salt, 3 pounds of sugar, and 2 ounces of saltpeter. This is merely a curing solution and necessitates a real smoke treatment for smoke-flavoring.

2. A commercial product consisting of hickory-smoked salt, sugar, saltpeter, and a small quantity of magnesium chloride added to prevent caking. This gave good results without further smoking in real smoke, though some persons might prefer a more concentrated flavor of smoke than is obtained by the use of this mixture.

3. A product used for curing fish. It is manufactured by the same company that makes mixture 2. The difference between mixtures 2 and 3 is the heavier smoke of 3, which gave an excellent smoke flavor without any treatment in real smoke.

4. A commercial product that differs chiefly from mixtures 2 and 3 in that the smoke flavor of the salt is produced by so-called liquid smoke instead of by hickory smoke. There may be other differences also. The results from the use of this mixture were good; however, mixture 2, and, especially, mixture 3, were preferred to it.

Selecting the Birds

Only high-quality birds that are well fattened, and that are less than two years of age, should be selected for curing. The curing process tends to increase the stringiness and toughness of the muscle fibers of those that are old or thin.

Preparing the Carcass

The bird is killed and bled in the usual manner, and then is picked by the dry-picking, wax-dressing, or semi-scald method. The "hard-scald" method is not recommended because of the poor appearance and lack of keeping quality of the carcasses so prepared. Care should be taken not to tear the skin; badly torn specimens should be discarded. The bird should then be drawn, removing all viscera, shanks, and neck. The removal of the viscera and of the neck close up between the shoulders leaves an opening at both ends of the carcass, and facilitates washing; also it permits the solution to reach all parts of the body cavity.

The carcass, giblets, and neck should be thoroughly washed, and chilled to about 40 degrees Fahrenheit. After chilling, they will be ready for the curing process. The neck and giblets should be cured with the carcass to be used later.

Preparing the Curing Solution

The water to be used is measured, boiled, and then cooled to just below the boiling point. The smoked-salt curing mixture is added to the hot water at the rate of 2 pounds of the mixture (2, 3, or 4) to a gallon of water, and stirred until it is dissolved. As soon as the water has cooled enough to handle, it may be strained to remove the black specks that float on the surface. This solution should then be cooled to about 40 degrees Fahrenheit and it is ready to use.

When the brine treatment is to be followed by further smoking in a smokehouse, any of the mixtures previously mentioned are satisfactory; but for complete curing in the solution, without any treatment with real smoke, only the mixtures containing smoked salt should be used.

Curing in Smoked Brine

About 10 cubic centimeters of the curing solution is injected through the thick meat and around the joints or bones of each of the thighs (upper joint), wings at the shoulder joint, and along each side of the breast bone. The injection starts the curing process in the joints and thick-meated regions promptly, reduces the length of the curing period, and, consequently, decreases the salt concentration in other sections.

The carcasses are then packed closely in a jar or clean hardwood barrel, and weighted to prevent them from floating when the solution is added. Enough solution is added to cover the carcasses well. The jars are then stored in a cool place (about 40 degrees Fahrenheit) for about seven days, depending somewhat upon the size of carcass to be cured.

Length of Curing Period

In the studies at Cornell, the turkey carcasses that weighed about 18 pounds, and that remained for five days in solutions of either 2 or 4 mixtures, did not have enough smoke flavor. Those left for twelve days were so salty that they required considerable soaking in clear water before cooking.

Seven days of curing in these solutions gave a mild smoke flavor and the carcasses were not too salty after two to four hours soaking in clear water, even though they were basted in their own juices during roasting.

Seven days of curing in mixture 3, commonly used for smoke-curing fish, produced a heavier smoke flavor. This mixture is preferred over the others because of its distinct and pleasant smoke flavor.

Handling Birds After Curing

The carcasses are removed from the curing solution at the end of the seventh day, washed carefully, and hung in a cold room to drain and dry for from twelve to twenty-four hours. They will then be ready for the roasting oven or they may be wrapped in cellophane and placed in stockinet bags and held for a considerable time.

How to Use Smoked Poultry

Carcasses smoked for a long period of time at a high temperature may be used with or without further cooking, depending upon individual tastes. Those smoke-flavored in brine should be soaked in cold water for from two to four hours to remove the excess salt, then roasted in the usual manner, and served hot or cold.

It may be used as a dainty, appetizing hors d'oeuvre, center attraction for a light supper, or as the piece de resistance of a full-course dinner. The pan gravy from the roast has an excellent flavor.

The neck meat and giblets when boiled and ground may be used in the dressing; or, when mixed with mayonnaise or plain cheese, make a delicious sandwich spread.

Smoke-flavored meat may be ground and made into a tasty meat loaf, "turkey-burgers," or chopped and creamed with mushrooms.

At Cornell, chicken broilers also were cured for three days in smoke-salt brine. These were satsifactory when consumed within a few days, but tended to become dry and stringy when held for a longer period. Three days during this period, mechanical trouble was experienced with the refrigerator and the temperature went as high as 70 degrees Fahrenheit. Some mold appeared on the carcass, but this was removed and the carcass consumed. The flavor was excellent.

The Smokehouse Method

Fowl and turkeys to be cured in real smoke should first go through the same steps as described, including the brine cure. Since the smoke flavor is to be produced by the real smoke in the smokehouse, mixture 1 can be used for the brine, as well as any of the other mixtures.

The birds are removed from the brine, dried at low temperature for from twelve to twenty-four hours, then the skin of the neck is folded back between the shoulders and fasten by folding the wing tips over it. This closes the fore end of the carcass and may obstruct the passage of smoke through the body cavity, but it saves considerable fat drippings that would otherwise be wasted.

The carcasses are now ready for the smokehouse. Smoke is released from a smoldering fire of green applewood, hickory, corncobs, or other hardwoods. Hickory or applewood is most in favor, but there are ardent advocates for the flavor produced by corncobs.

The length of time in the smokehouse, the number of actual hours of smoking, and the smoking temperature depend upon the intensity of the smoke flavor desired, and whether the product is to be cooked later or is to be consumed just as it comes from the smokehouse.

At Cornell, the smoking period was eight to ten hours a day for three days, at a temperature of about 110 degrees Fahrenheit. This resulted in a well-flavored product of medium-brown color. The loss in weight was much lower than that reported by other operators. This may have been due to the low smokehouse temperature, the well-fattened birds used, and to the method of folding the skin of the neck to retain the drippings. Carcasses smoked at temperatures around 110 degrees Fahrenheit are not ready for consumption without further cooking in the usual manner.

A recent publication from the United States Department of Agriculture (A.H.D. No. 28, revised August, 1939) indicates that a smoking temperature of from 135 degrees to 140 degrees Fahrenheit is more effective in producing a desirable color than is a lower temperature.

Texas Growers Specialize in Eggs

By GEORGE P. McCARTHY
Texas A & M College

Condensed from Turkey World

THE TURKEY hatching egg industry in Texas is a comparatively young industry. Seven years ago, J. D. Prewit, county agricultural agent, McCulloch county, interested a small group of turkey producers in holding back some of their better market birds for the purpose of producing hatching eggs for sale to hatcheries. Approximately 100,000 eggs were sold that year.

Since that time, the number of turkeys produced in the United States has been doubled. During this same period, the turkey industry has become more and more specialized. Accompanying this growth and specialization has been a constantly increasing demand for hatching eggs.

Poultry-Dairy Publishing Co., Inc., Mount Morris, Ill.
(Turkey World, December, 1940)

Texas turkey people have taken advantage of this demand, and today supply great quantities of hatching eggs to hatcheries through the northern and eastern part of the United States.

Good Eggs Assured

In order to assure hatcherymen that they will get good hatching eggs, producers have set up standardized programs of breeding, management, and disease control. As the industry has grown, a number of cooperative egg marketing associations have been formed. The largest of these cooperatives has grown from the original group in McCulloch county. This group has been much interested in producing a high quality hatching egg, and they have made several changes and improvements in their operations during the past few years. This year, they are operating under the Texas Turkey Improvement Program, in which all their flocks will be officially selected and pullorum tested by qualified men.

Purebred Birds Only

All breeding birds that will be kept in the flock will be legbanded so that a definite check can be kept on all birds in the flock. All turkeys that are selected must be purebred, and are selected for body type, vigor and maturity. The minimum requirement for hen is 10 lbs. The minimum requirement for young toms is 18 lbs. All eggs that will be sold for market must weigh at least 30 ounces to the dozen and must be stamped with the number of the breeder, so that he will be responsible for any poor fertility that might occur in his flock.

This association guarantees 85 per cent fertility on all of its hatching eggs.

In their breeding pens, they require at least one tom for each 10 hens. It is also required of the producers that their flocks are placed on a standard commercial laying mash at least 30 days before they start selling eggs, and that they be kept on this type of feed until the season is over.

No eggs will be delivered to the association that are over seven days old. No member can deliver eggs to the association except from his own flock. This association will have approximately 300 members, with approximately 18,000 laying hens. Only hatching eggs from Black Spanish and Bronze turkeys are sold.

Pullorum-Free Breeders

In Hamilton County, another small turkey egg association is in operation, and last year had 1,100 breeders—600 Black Spanish and 500 Bronze. Likewise, all of their breeding stock is carefully selected and bloodtested by a qualified agent, and, as a result of carrying this testing work over a period of years, they have not had any reactors during the past few years. The association requires that all members place their turkeys on a commercial breeding mash and that they be treated properly for worms before the breeding season, and also vaccinated for fowl pox.

In northwestern Texas is a specialized turkey association, inasmuch as all their turkey breeders are of the Broad Breasted variety. This association has been doing intensive work on turkey breeding for the last five years, and produces and sells hatching eggs and poults to a large percentage of the turkey farms over the state. A graduate of Texas A. & M. College is in charge of the hatchery there, and does all the flock selecting and pullorum testing work. This association operates under the Texas Turkey Improvement Plan, and all breeders are carefully selected, bloodtested and banded. Approximately 1,200 breeding hens are kept for egg production.

Growers Improve Flocks

There are many independent producers of eggs in the state that are doing a very good job of producing quality eggs. The largest singly-owned turkey farm is located in the south central part of the state. This farm sells hatching eggs from the Bronze and Black Spanish turkeys. The owner has been selecting for a medium size, well-meated, short-legged turkey. All his breeding stock is pullorum tested in December and re-tested just before marketing season. For the 1941 season, he will have approximately 6,000 laying hens.

His breeding pens are divided into small units with approximately 125 hens to each unit. All hatching eggs are gathered four times a day and placed on a cooling rack, where they are carefully culled, cleaned and candled before packing for shipment.

There are a number of smaller independent producers in the state who are carrying on a very good and very closely supervised program of egg production.

Competition for this type of business is so intense that producers who want to stay in business year after year must supply good eggs, or they do not get repeat orders. For this reason, the quality of Texas hatching eggs is, as a general rule, very good. Each year, both associations and independent producers in Texas are paying much more attention to the selection of stock and proper feeding and management, in order to produce and sell higher quality eggs.

A NEW record for high speed molting is reported by Eggs, London, England, poultry publication. When a bomb fell on an English poultry farm, the blast stripped birds of every feather on one side of their bodies.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock Dec. 1 1940	Layers per flock Jan. 1 1941	Layers per flock Feb. 1 1941	Eggs per 100 layers Dec. 1 1940	Eggs per 100 layers Jan. 1 1941	Eggs per 100 layers Feb. 1 1941	Eggs per flock Preceding yr. Dec. 1 1940	Eggs per flock Preceding yr. Jan. 1 1941	Eggs per flock Preceding yr. Feb. 1 1941
North Atl.									
1930-39 (Av.)	93.9	97.5	95.4	21.7	26.8	34.0	20.4	26.2	32.3
1940	92.9	97.2	94.8	28.2	34.1	35.2	26.2	33.1	33.3
1941	92.4	95.4	94.5	30.1	37.7	41.2	27.6	36.1	38.9
E. N. Cent.									
1930-39 (Av.)	103.1	108.8	107.8	16.1	20.1	27.6	16.8	22.1	29.9
1940	107.4	110.8	109.3	24.0	28.5	25.8	26.2	32.0	28.6
1941	106.9	110.3	108.5	23.6	30.3	35.7	25.6	33.9	39.0
W. N. Cent.									
1930-39 (Av.)	109.6	117.6	117.2	11.4	15.2	22.0	12.7	17.9	26.0
1940	109.9	118.6	116.9	17.9	23.0	18.9	19.8	27.5	22.3
1941	109.9	116.1	114.7	13.8	22.0	29.9	15.4	25.7	34.6
South Atl.									
1930-39 (Av.)	55.8	58.6	57.4	18.8	21.2	29.6	10.5	12.4	17.2
1940	56.9	59.9	58.8	23.8	28.0	25.3	13.7	16.7	14.6
1941	57.0	59.4	58.0	24.1	28.7	34.4	13.9	16.9	19.9
South Cent.									
1930-39 (Av.)	60.6	64.4	63.9	16.2	18.1	26.6	9.9	11.7	17.0
1940	62.4	65.8	64.0	18.5	22.3	18.8	11.8	14.8	12.1
1941	59.2	62.7	61.6	19.0	22.6	33.4	11.4	14.4	20.7
Western									
1930-39 (Av.)	71.0	73.2	72.6	19.2	23.6	31.1	13.2	16.8	21.9
1940	70.4	73.7	71.6	24.2	30.2	32.1	16.1	21.8	21.6
1941	68.7	71.6	69.1	22.4	27.6	36.0	14.4	19.3	24.5
United States									
1930-39 (Av.)	79.4	84.0	83.2	15.8	19.3	26.8	12.7	16.2	22.4
1940	80.8	85.1	83.5	21.5	26.3	23.9	17.3	22.2	19.4
1941	79.4	83.2	81.8	20.2	26.6	33.9	16.3	22.1	27.9

Unusually favorable weather during January brought about a record high January egg production of 2,831 million eggs. This production was 18 per cent larger than in January 1940, 30 per cent larger than the 10-year (1930-39) average, and exceeded the previous high production in January 1939 by 9 per cent. January egg production also reached new record high levels in all geographic areas except the Western States and exceeded the 10-year average in all areas.

The average rate of egg production per layer during January reached an all-time high of 8.73 eggs compared with 7.25 eggs a year ago and with the 10-year (1930-39) average of 6.56 eggs. In contrast to the cold stormy weather during January 1940, the weather during January this year was unusually favorable for egg production.

The rate of egg production per layer during January reached new highs for the month in all parts of the country except the Far Western States, where it was about equal to the record high of January 1939. Compared with last year, increases in eggs per hen were 39 per cent in the South Central, 23 per cent in the West North Central, 22 per cent in the East North Central, 20 per cent in the South Atlantic, 14 per cent in the North Atlantic, and 2 per cent in the Western States.

The 10-year (1930-39) January rate of lay per average layer on hand during the month was exceeded in all parts of the country by this year's January rate. Increases over the 10-year average were 40 per cent in the East North Central and West North Central States, 35 per cent in the South Central, 30 per cent in the South Atlantic, 29 per cent in the North Atlantic and 11 per cent in the Western States.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Marketings of live poultry at Central Western packing plants showed a pick-up during the early part of February, but dropped off after the middle of the month. However, these receipts at that time were almost 10 per cent greater than during the corresponding period of last year, whereas in January they were lighter. The bulk of marketings now are fowls. Dressed poultry receipts at the four principal markets in January were 16 per cent less than a year earlier, and February receipts are less than a year ago by approximately 10 per cent.

Receipts of eggs at Central West country packing plants, which in early December began showing seasonal increases each week, were still increasing through the week ended February 22. For comparable plants, the quantities received the past few weeks are about double what they were a month ago. For a brief period last November and December, weekly receipts at these plants were less than a year earlier, but during the past six weeks they have exceeded the corresponding weeks of last year by more than 100 per cent, although it should be noted that last year's receipts were light. In the case of Pacific Coast packing plant receipts, the situation is different than that of the Middle West, for plants in Washington, Oregon and California have reported lighter receipts than a year earlier each week since the first of August. Seasonal changes have been somewhat irregular, but on the whole the tendency has been upward since early in December. Terminal market receipts of eggs during January were approximately 12 per cent greater than a year earlier, with February receipts up 25 per cent. January receipts of Pacific Coast eggs at eastern markets were 77 per cent below those of January 1940.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic section	JANUARY		
	1941	1940	Per cent change
New England	64,026	54,825	+ 16.8
Middle Atlantic	236,019	174,133	+ 35.5
South Atlantic	15,193	13,588	+ 11.8
East North Central	221,317	199,317	+ 11.0
West North Central	408,193	334,384	+ 22.1
South Central	1,615	508	+217.9
Mountain	19,486	35,775	− 45.5
Pacific	15,024	66,028	− 77.2
Miscellaneous	408	297	+ 37.4
TOTAL	981,281	878,855	+ 11.7

Receipts of Dressed Poultry (pounds) at 4 Markets*

New England	283,541	641,909	− 55.8
Middle Atlantic	1,792,566	1,261,146	+ 42.1
South Atlantic	2,504,282	2,103,120	+ 19.0
East North Central	2,834,534	2,843,688	+ 0.4
West North Central	14,459,797	18,462,926	− 21.7
South Central	1,522,164	1,617,082	− 5.9
Mountain	1,609,182	1,577,331	+ 2.0
Pacific	1,757,318	3,331,558	− 47.3
Miscellaneous	0	0	−
TOTAL	26,763,384	31,818,760	− 15.9

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs			Pounds of Poultry (000 omitted)			Pounds of Young Stock (000 omitted)			Pounds of Fowl (000 omitted)		
	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.
Feb. 1	69,547	33,039	+110.50	1,764	2,071	−14.84	Discontinued until 1941 Hatchings Are Available in Larger Volume.			1,419	1,686	−15.84
Feb. 8	75,189	33,402	+125.10	1,964	2,170	− 9.49				1,661	1,776	− 6.50
Feb. 15	107,833	48,206	+123.69	2,002	1,859	+ 7.70				1,717	1,510	+13.73
Feb. 22	128,676	62,193	+106.90	1,717	1,561	+ 9.96				1,474	1,274	+15.63

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
February 1	31	41,122	−2.45	+28.68
February 8	29	37,872	+3.85	+31.45
February 15	25	30,742	−1.85	+26.84
February 22	29	36,236	−1.09	+ 2.61

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
February 1	59	57,804	64,114	+3.28	− 9.84
February 8	61	57,833	67,572	−0.59	−14.40
February 15	60	60,602	70,468	+5.56	−14.00
February 22	61	63,339	70,262	+0.50	− 9.85

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. Dollars		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
February 6	9.6	7.7	9.0	.20	.25	.206	1.93	1.92	1.65
February 13	9.6	7.0	7.8	.198	.274	.211	1.90	1.91	1.65
February 20	10.1	7.1	8.5	.186	.268	.193	1.89	1.91	1.64
February 28	10.2	8.8	9.0	.185	.217	.185	1.89	1.92	1.66

—Compiled by N. Y. State Dept. of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration		10-Yr. Avg.	Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	1931-40	1941	1940	1941	1940
February 1	7.13	5.56	5.88	.172	.221	1.230	1.232
February 8	7.00	5.18	5.94	.175	.240	1.225	1.247
February 15	7.11	5.93	6.07	.170	.212	1.214	1.260
February 22	7.48	6.23	6.15	.160	.202	1.201	1.259

—Compiled from U. S. D. A. market reports.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
January	6.05	9.34	6.34	6.95	7.73	6.46
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

February egg markets have been characterized by unusually heavy supplies, and by the active buying program of the Surplus Marketing Administration. Even with support of heavy Government purchases, however, the Agricultural Marketing Service says the tone of the market has been unsettled to weak most of the month, due to heavy offerings and the continued reluctance of commercial buyers to purchase at prevailing prices. An average net price reduction of about a cent per dozen has occurred, with all prices below those of a year ago, the amount of the reduction varying with different grades. January production set an all-time record for the month, unusually favorable weather and a higher average rate of lay more than offsetting the smaller number of layers. For the country as a whole, the increase over January 1940 was 18 per cent, while the increase over the 1930-39 average for the month was 30 per cent.

February purchases of eggs by the Surplus Marketing Administration approximated 173,000 cases. These purchases were made at New York and Chicago, with about two-thirds at the latter market. Buying prices were dropped about 2 cents as the month progressed, but were raised a cent later. Prices paid for the first purchases were about 3 cents below a year earlier, but at the close the difference was less, owing to the fact that in February 1940, prices declined sharply. Although this year's wholesale prices generally show declines in February, the net reductions were about a cent at Chicago, and slightly more at New York on Western and Nearby eggs, with no change in that market on Pacific Coast eggs. On the Pacific Coast proper, prices on top grades have dropped a cent.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Feb. 1	Feb. 8	Feb. 15	Feb. 21	Feb. 21, '40
Mixed Color Firsts	18¼	18½	18	17	25
Nearby and Midwestern White Premium Marks	21½-23	21½-23	20¾-22½	19¾-21¼	27-28½
Nearby and Midwestern White Exchange Specials	21	21	20¼-20½	19¼	26½
Pacific Coast Specials	25½-26	25½-26	25½-26	24½-25	26½-28
Nearby and Midwestern Brown Specials	20¼	20	19¾-20	18¾	26½

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7											

Eggs in Storage

It appears that the low point of egg storage stocks may have been reached this season about February 15, as was the case last year, for the report covering the week ending February 22 shows an increase over the preceding week. In the four principal markets, however, day-to-day reports reveal continued reductions. In either case, the quantities of shell eggs in storage are greater than a year ago. Stocks in the 35 cities on March 1 were 187,500 cases (including 15,000 cases belonging to Surplus Marketing Administration and relief agencies), compared with a total of 64,000 cases a year earlier. The current February reduction has been at a more rapid rate than a year ago, which may have been expected on account of the unusually light stocks in February 1940. February 1 total stocks in the U. S. this year were 311,000 cases, compared with but 57,000 cases on the same date in 1940, and a 1936-40 average of 227,000 cases.

Some increased activity is noted in frozen egg production. Heavy egg production and the prevailing price situation account for this. While the volume of January production was not great, there was an increase of 57 per cent over last year. The quantity of frozen eggs in storage on February 1 was 53,886,000 pounds, a reduction of 2½ million pounds under a year earlier, and 6½ million pounds under the February five-year average.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	Feb. 1 5-Year Avg. 1936-40	Feb. 1 1940	Jan. 1 1941	Feb. 1 1941	% Change Feb. '40-Feb. '41
		Thousands			
Shell Eggs (cases)	227	57	614	311**	+5.4
Frozen Eggs (lbs.)	60,204	56,249	73,326	53,886	–1.0
Frozen Case Equivalent (cases)*	1,720	1,607	2,095	1,540	–1.0
Total (cases)	1,947	1,664	2,709	1,851	+1.1

* Frozen eggs are converted on the basis of 35 pounds to the case.

** Includes 24,714 cases owned by the Surplus Marketing Administration for relief distribution.

Poultry Meat Prices

Mid-Month Farm Prices of Chickens Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7											

The live poultry market this month has been steady to firm, with a slight upward price tendency in several of the larger markets. Chicago prices were 1 to 2 cents higher toward the close than on the first of the month, except on heavy hens, and most classes at Philadelphia, Baltimore and Washington are up by about a cent. New York prices fluctuated somewhat during the month, but on the whole do not show much net change, as slight gains toward the middle of the month were not held. That market has been unsettled by labor conditions this month. Average weekly receipts at New York in February were almost a third lighter than in January, and about 20 per cent below those of February 1940.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	Feb. 1 5-Year Avg. 1936-40	Feb. 1 1940	Jan. 1 1941	Feb. 1 1941	% Change Feb. '40-Feb. '41
		Thousand Pounds			
Broilers	12,720	10,195	11,170	9,811	–1.0
Fryers	12,504	8,570	14,327	12,718	+1.4
Roasters	29,504	26,810	35,118	31,403	+1.1
Fowls	22,196	24,532	41,461	35,331	+1.4
Turkeys	36,627	65,467	60,626	65,313	–1.0
Ducks	3,675	4,256	7,992	5,842	+1.3
Miscellaneous	22,321	17,429	20,819	17,880	+1.0
Unclassified		9,703	16,852	13,350	+1.3
Total	139,547	166,962	208,365	191,648	+1.1

Total U. S. stocks of frozen poultry on February 1 were 191½ million pounds, a reduction of approximately 24½ million pounds under a year earlier. On this date, stocks in the 35 cities were about 15 million pounds under the corresponding period of 1940. The rate of reduction in the 35 cities since February 1 has been greater than in 1940, and the difference between this year and last is now only some 10½ million pounds. In 1940 total U. S. stocks of dressed poultry on March 1 were 144¾ million pounds.

Included in dressed poultry stocks on February 1 this year were 65 million pounds of turkeys. According to a recent survey approximately 59 per cent of the non-eviscerated turkeys included birds weighing under 16 pounds. Of the eviscerated stock, 44 per cent weighed less than 16 pounds. Such information as is available indicates that eviscerated stock constitutes approximately 13 per cent of the total.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Hatchery Operations

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Division	Chicks booked Feb. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Feb. 1, 1940	January 1940	January 1941	January 1940	January 1941	% change from January 1940
New England	+87	2	2	98	98	+70
Middle Atlantic	+ 1	31	22	69	78	+ 9
South Atlantic	+65	5	4	95	96	+87
E. N. Central	+71	9	5	91	95	+57
W. N. Central	+68	25	19	75	81	0
So. Central	+70	10	12	90	88	–14
Mountain	–17	12	18	88	82	+60
Pacific	+10	73	68	27	32	+42
U. S.	+41	20	17	80	83	+46

Eggs Set by Commercial Hatcheries

Geographic Divisions	Jan. 1938	Jan. 1939	Jan. 1940	Jan. 1941	% chg. from Jan. 1940
		Thousands			
New England	7,776	8,413	6,102	10,556	+ 73
Middle Atlantic	9,180	11,762	7,377	9,664	+ 31
South Atlantic	7,983	9,227	6,056	8,721	+ 44
E. N. Central	11,143	14,793	9,127	17,797	+ 95
W. N. Central	9,786	11,859	6,809	14,707	+116
South Central	12,158	15,586	10,872	16,091	+ 48
Mountain	1,504	2,032	1,389	2,625	+ 89
Pacific	7,772	9,830	6,780	8,746	+ 29
U. S.	67,302	83,502	54,512	88,907	+ 63

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Jan. 1938	Jan. 1939	Jan. 1940	Jan. 1941	% chg. from Jan. 1940
		Thousands			
New England	5,148	5,480	3,933	7,551	+92
Middle Atlantic	4,301	4,811	2,769	3,960	+43
South Atlantic	3,978	5,573	4,981	6,924	+39
E. N. Central	2,908	6,033	5,392	7,117	+32
W. N. Central	4,025	5,678	4,310	6,465	+50
South Central	4,908	7,781	5,109	6,335	+24
Mountain	485	610	314	311	– 1
Pacific	3,912	4,316	3,206	4,585	+43
U. S.	29,665	40,282	30,014	43,248	+44

—Comment from U.S.D.A. Poultry and Egg Production Report.

Reflecting the higher egg prices of December and the improved outlook for the egg and poultry industries in 1941 that developed at the same time, the number of eggs set and chicks hatched by commercial hatcheries in January 1941 set a new high January record, the Agricultural Marketing Service reports. January hatchings, estimated at 43,248,000 chicks, were 44 per cent larger than the hatch of January 1940 and 7 per cent larger than the previous high record hatch of January 1939. Eggs set by hatcheries in January, estimated at 88,907,000, were 63 per cent larger than the number set in January last year, and 6 per cent larger than the previous January record set of 1939.

January, however, is one of the lighter hatching months—averaging only about 4 per cent of the average annual total hatch – and operations are subject to wide variations with only temporary significance. That many egg and poultry producers were optimistic over the outlook for 1941, however, is indicated by advance orders reported by hatcheries for February 1, 1941. These showed an increase of 41 per cent over the number on order on the same date a year earlier. Some of the optimism indicated by that increase, however, may have since been modified. Egg markets in late January began to show a weakness which became pronounced in early February, and with an unfavorable change in the relation of egg prices to feed costs, it is likely that some February cancellations were made in advance orders.

Increases over last year's January hatchings were reported in all of the principal geographical divisions with the exception of the Mountain States where it was practically unchanged. The largest increase was 92 per cent in the New England States. Other increases ranged from 24 per cent in the South Central States to 50 per cent in the West North Central States.

The increase of 63 per cent in the number of eggs set over the number set in January last year was considerably more than the increase of 44 per cent in the number of chicks hatched during the month. More eggs were available for hatchings in January this year than were available in January last year, when cold weather in a number of the principal hatching areas cut down on both egg production and the number that could be used for hatching.

Hatcheries operating in January increased their settings, and a large number of eggs were set by hatcheries that ordinarily do not operate in January. In view of the large increase in the number of eggs set in January in relation to the increase in the number of chicks hatched, there is no doubt that the hatch in February will be much larger than the hatch of February last year, irrespective of other factors. Also the cold weather that began in January 1940 extended all through February, and in some areas the temperatures dropped extremely low. Practically no eggs were available for hatching, and the hatch in February last year was the smallest February of record.

Up to February, the demand for chicks had been good, and no surplus chicks were reported by hatcheries in January. Since that time, some uneasiness has developed because of the recent break in the egg markets.

The number of chicks sexed in January was 46 per cent larger than the number sexed a year earlier. The per cent of chicks hatched that were sexed, however, was the same as in January last year, being 23 per cent of the hatch for firms which reported sexing both years.

There is very little information at this time from plants engaged in hatching turkey poults. Most of the information received was on orders booked February 1. Thirty-three plants showed 6 per cent more poults on order February 1 than on the same date last year.

—Comment from U. S. D. A. Hatchery Report.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		JANUARY 1941	JANUARY 1940
Eggs in shell	(doz.)	327,349	283,705
Eggs and Yolks, frozen, dried or canned	(lbs.)	34,522	7,554
Live Poultry	(lbs.)	4,497	7,917
Dressed Poultry	(lbs.)	157,092	127,386

Imports of Eggs and Poultry

Commodity		1941	1940
Eggs in shell	(doz.)	20,046	16,371
Whole Eggs, dried	(lbs.)	0	5,000
Whole Eggs, frozen	(lbs.)	0	167
Yolks, dried	(lbs.)	193,600	52,800
Yolks, frozen	(lbs.)	420	0
Egg Albumen, dried	(lbs.)	25,998	37,600
Egg Albumen, frozen	(lbs.)	0	0
Live Poultry	(lbs.)	111,187	37,336
Dressed Poultry	(lbs.)	13,039	12,254
Poultry, prepared	(lbs.)	70,165	58,275

Water Makes Eggs

Your hens' water supply must be clean and constant. Hens will drink dirty water if they can't find any other; but they won't drink enough for top production. Whether you have running water or fountains, the water pan should be rinsed out at least once a day, preferably oftener. Water is the cheapest raw material that goes into your eggs; the more your hens drink, the better they'll lay.

Don't fool yourself about leaving your layers without water. If you have running water, be sure you have an extra pan or two so that if you have to take one pan out for repairs, the birds will have their water. If you have fountains, clean and refill them one at a time, so that there will be plenty of water to drink in the pen. And above all, don't make the mistake of so many poultrymen who know the water will last till they get there in the morning, and find the fountains empty. Birds drink heavily just before going to roost and after getting down off the roost in the morning. Birds that go on the nest early in the morning will usually make a dash for the water dish before going on the nest; if they miss this extra water, it may affect their production later.

Keeping water consumption up in freezing weather is extremely important. The water seldom freezes in well insulated houses; but in cold houses, it is well to temper the water either by adding just a little hot water occasionally or by some form of water heater.

—Service Bulletin issued by Irving Kauder, New Paltz, N. Y.

RESULTS OF LAYING TESTS

By the slender margin of two and one-half points, J. A. Hanson's pen of White Leghorns at Storrs leads T. N. Wilcox's Barred Rock entry at Georgia to February 1. In third highest position among all pens at all 18 standard tests are E. B. Parmenter's Rhode Island Reds at Maine. Rapp's Poultry Farm's White Leghorns at Hunterdon, N. J., occupy fourth best perch through the four months thus far.

Highest pens in the other leading breeds include Colonial Farms' pen of New Hampshires, Albert C. Lawton's pen of White Rocks, and Harvey E. Taylor's pen of White Wyandottes.

Blue ribbon hen to February 1 is Colonial Farms' New Hampshire at Texas. She has to her credit 121 eggs and 132.7 points. W. A. Seidel's White Leghorn hen at the Texas Test is virtually tied for first place with 121 eggs and 132.5 points.

J. J. Warren's Reds and E. B. Parmenter's Reds each lead at four different tests to February 1.

Rapp's Poultry Farm gains the distinction of having highest scoring pen for January. Its White Leghorn team at Hunterdon shelled out a total of 386 eggs and tallied 410.4 points during the month. Six tests each had one or more birds that laid 31 eggs and earned 34.1 points during the 31 days.

The Georgia Test holds the foremost position to February 1 in average production per bird. Next in order are Texas, Arizona, and Storrs.

Twenty Highest Pens, All Breeds, to February 1—(123 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1434	1491.75	Storrs
T. N. Wilcox	Barred Rock	1433	1489.25	Georgia
E. B. Parmenter	Rhode Island Red	1391	1477.50	Maine
Rapp's Poultry Farm	White Leghorn	1390	1426.95	Hunterdon, N. J.
H. J. Hardin	Rhode Island Red	1401	1424.45	Georgia
G. B. Treadwell	Rhode Island Red	1372	1423.60	Maine
J. J. Warren	Rhode Island Red	1340	1415.65	Long Island
W. H. Wilson	Rhode Island Red	1434	1412.50	Georgia
L. D. Bartholomew	Rhode Island Red	1321	1391.05	Storrs
E. B. Parmenter	Rhode Island Red	1347	1390.30	Long Island
Missouri Valley Hatchery	Rhode Island Red	1265	1371.95	Missouri
W. H. Wilson	Rhode Island Red	1350	1363.15	Georgia
J. J. Warren	Rhode Island Red	1269	1361.80	Maine
Colonial Farms	New Hampshire	1297	1361.75	Texas
Kauder's Pedigreed Leghorns	White Leghorn	1361	1361.35	Texas
J. J. Warren	Rhode Island Red	1297	1361.05	Texas
J. J. Warren	Rhode Island Red	1319	1355.75	Florida
J. J. Warren	Rhode Island Red	1342	1345.00	Georgia
E. B. Parmenter	Rhode Island Red	1297	1341.40	Passaic, N. J.
J. J. Warren	Rhode Island Red	1309	1338.85	Storrs

High Pen in Each Standard Test to February 1—(123 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1434	1491.75	Storrs
T. N. Wilcox	Barred Rock	1433	1489.25	Georgia
E. B. Parmenter	Rhode Island Red	1391	1477.50	Maine
Rapp's Poultry Farm	White Leghorn	1390	1426.95	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	1340	1415.65	Long Island
Missouri Valley Hatchery	Rhode Island Red	1265	1371.95	Missouri
Kauder's Pedigreed Leghorns	White Leghorn	1361	1361.35	Texas
J. J. Warren	Rhode Island Red	1319	1355.75	Florida
E. B. Parmenter	Rhode Island Red	1297	1341.40	Passaic, N. J.
J. A. Hanson	White Leghorn	1293	1332.15	Rhode Island
E. B. Parmenter	Rhode Island Red	1318	1322.15	Paterson, N. J.
G. B. Treadwell	Rhode Island Red	1258	1294.35	Pennsylvania
J. J. Warren	Rhode Island Red	1269	1293.00	Western New York
E. B. Parmenter	Rhode Island Red	1242	1291.25	California
Missouri Valley Hatchery	Rhode Island Red	1219	1243.30	Oklahoma
Gold Spot Hatchery	White Leghorn	1162	1219.65	Arizona
Bodine's Pedigreed Leghorn	White Leghorn	1259	1206.90	Central New York
J. J. Warren	Rhode Island Red	1123	1162.70	Michigan

High Pen in Each Standard Test for January

Owner	Breed	Eggs	Points	Test
Rapp's Poultry Farm	White Leghorn	386	410.40	Hunterdon, N. J.
T. N. Wilcox	Barred Rock	363	391.05	Georgia
W. A. Seidel	White Leghorn	361	390.90	Storrs
Lindstrom Poultry Farm	Rhode Island Red	350	381.55	Missouri
E. B. Parmenter	Rhode Island Red	352	379.75	Rhode Island
E. B. Parmenter	Rhode Island Red	350	375.35	Maine
E. B. Parmenter	Rhode Island Red	350	370.20	Passaic, N. J.
I. Commer	White Leghorn	344	361.80	Texas
Crooks Farm	Rhode Island Red	337	360.80	Pennsylvania
E. B. Parmenter	Rhode Island Red	335	355.05	Long Island
T. N. Wilcox	Barred Rock	326	351.40	Florida
Dembro Poultry Farm	White Leghorn	307	333.75	Paterson, N. J.
E. B. Parmenter	Rhode Island Red	306	330.55	California
Foreman Poultry Farm	White Leghorn	304	324.15	Michigan
A. L. Frees	New Hampshire	303	323.90	Arizona
Colonial Poultry Farm	White Rock	289	311.40	Oklahoma
J. J. Warren	Rhode Island Red	296	309.30	Western New York
Baker Poultry Farm	White Leghorn	269	277.50	Central New York

High Pen in Each Breed to February 1—(123 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1434	1491.75	Storrs
T. N. Wilcox	Barred Rock	1433	1489.25	Georgia
E. B. Parmenter	S. C. Rhode Island Red	1391	1477.50	Maine
Colonial Farms	New Hampshire	1297	1361.75	Texas
Albert C. Lawton	White Rock	1203	1157.55	Storrs
Harvey E. Taylor	White Wyandotte	1103	1043.80	Texas
R. S. Thomas	Ancona	1067	1022.90	Pennsylvania
Paul Hansen	Black Australorp	979	963.65	California
E. J. Covey	Black Minorca	796	812.70	Texas
Iowa Master Breeders	R. C. Rhode Island Red	790	811.85	Texas
S. E. Raymond	Lamona	766	796.50	Storrs
Lindstrom Poultry Farm	Buff Minorca	868	791.00	Texas
Superior Hatchery	Light Brahma	710	740.50	Georgia
Howard C. Jones	Buff Orpington	741	734.00	Florida
Raymond Murphy	White Giant	665	698.95	Missouri
Illinois Hatchery	Brown Leghorn	692	689.80	Texas
Colonial Farms	White Minorca	455	488.70	Missouri
Ward's Poultry Farm	Buff Leghorn	518	487.10	Oklahoma

High Hen in Each Breed to February 1—(123 Days)

Owner	Breed	Eggs	Points	Test
Colonial Farms	New Hampshire	121	132.70	Texas
W. A. Seidel	White Leghorn	121	132.50	Texas
E. B. Parmenter	S. C. Rhode Island Red	120	129.90	Rhode Island
T. N. Wilcox	Barred Rock	115	123.55	Georgia
Lindstrom Poultry Farm	White Rock	115	118.75	Georgia
Harvey E. Taylor	White Wyandotte	103	108.00	Texas
Howard C. Jones	Buff Orpington	97	100.90	Florida
Iowa Master Breeders	R. C. Rhode Island Red	94	100.50	Texas
Laclede Hatchery	Black Australorp	96	100.35	Missouri
S. E. Raymond	Lamona	97	98.30	Storrs
Raymond Murphy	White Giant	87	94.60	Missouri
R. S. Thomas	Ancona	97	92.55	Pennsylania
Superior Hatchery	Light Brahma	91	90.60	Texas
E. J. Covey	Black Minorca	87	89.40	Texas
Illinois Hatchery	Brown Leghorn	91	83.90	Texas
Lindstrom Poultry Farm	Buff Minorca	80	83.05	Texas
Colonial Farms	White Minorca	75	80.05	Missouri
Ward's Poultry Farm	Buff Leghorn	65	62.75	Oklahoma

High Hen in Each Standard Test to February 1—(123 Days)

Owner	Breed	Eggs	Points	Test
Colonial Poultry Farm	New Hampshire	121	132.70	Texas
E. B. Parmenter	Rhode Island Red	120	129.90	Rhode Island
Rapp's Poultry Farm	White Leghorn	118	129.20	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	122	128.75	Storrs
Foreman Poultry Farm	White Leghorn	120	127.75	Georgia
Missouri Valley Hatchery	Rhode Island Red	116	127.00	Missouri
J. J. Warren	Rhode Island Red	117	125.75	Florida
E. B. Parmenter	Rhode Island Red	116	125.45	Pennsylvania
G. B. Treadwell	Rhode Island Red	118	125.40	Maine
George A. Pearce	Rhode Island Red	115	123.65	Passaic, N. J.
J. J. Warren	Rhode Island Red	112	122.40	Long Island
J. J. Warren	Rhode Island Red	112	120.40	Oklahoma
E. B. Parmenter	Rhode Island Red	113	119.45	Paterson, N. J.
Gold Spot Hatchery	New Hampshire	114	118.70	Arizona
J. J. Warren	Rhode Island Red	115	117.95	Western New York
J. A. Hanson	White Leghorn	108	116.25	California
Fred Schempf	White Leghorn	107	114.75	Central New York
Colonial Poultry Farm	New Hampshire	113	111.10	Michigan

High Hen in Each Standard Test for January

Owner	Breed	Eggs	Points	Test
Crooks Farm	Rhode Island Red	31	34.10	Pennsylvania
Booth Farms and Hatchery	White Leghorn	31	34.10	Georgia
Missouri Valley Hatchery	Rhode Island Red	31	34.10	Missouri
I. Commer	White Leghorn	31	34.10	Texas
E. B. Parmenter	Rhode Island Red	31	34.10	Rhode Island
Thomas Mettler	White Leghorn	31	34.10	Hunterdon, N. J.
C. A. Peeler	Barred Rock	31	34.05	Central New York
Alampi Poultry Breed. Farm	Rhode Island Red	31	34.05	Passaic, N. J.
Eugley's Poultry Plant	Rhode Island Red	31	33.85	Maine
Foreman Poultry Farm	White Leghorn	31	33.75	Michigan
E. B. Parmenter	Rhode Island Red	31	33.70	Florida
Dryden Poultry Breed. Farm.	White Leghorn	31	33.55	Western New York
Harco Orchards	Rhode Island Red	31	33.50	Storrs
E. B. Parmenter	Rhode Island Red	30	32.95	California
E. B. Parmenter	Rhode Island Red	30	32.95	Long Island
E. B. Parmenter	Rhode Island Red	30	32.85	Paterson, N. J.
Riley Poultry Farm	Barred Rock	30	32.60	Oklahoma
W. A. Seidel	White Leghorn	29	31.75	Arizona

Twenty Highest White Leghorn Pens in Country to February 1

Owner	Eggs	Points	Test
J. A. Hanson	1434	1491.75	Storrs
Rapp's Poultry Farm	1390	1426.95	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	1361	1361.35	Texas
J. A. Hanson	1293	1332.15	Rhode Island
Booth Farms and Hatchery	1308	1331.35	Georgia
Crescent Farms	1294	1330.85	Florida
J. A. Hanson	1298	1324.85	Storrs
George M. Heberer	1260	1290.30	Florida
Hollywood Poultry Farm	1394	1289.90	Georgia
Burr's Poultry Farm	1287	1278.75	Pennsylvania
J. A. Hanson	1253	1276.10	Pennsylvania
George M. Heberer	1264	1275.05	Texas
Rochelle Egg Farm and Hatchery	1280	1260.20	Texas
Creighton Brothers	1235	1257.40	Hunterdon, N. J.
McCoon's Poultry Breeding Farm	1284	1251.30	Texas
Foreman Poultry Farm	1213	1240.95	Georgia
Foreman Poultry Farm	1208	1240.60	Rhode Island
Foreman Poultry Farm	1237	1234.40	Hunterdon, N. J.
Dembro Poultry Farm	1156	1233.10	Hunterdon, N. J.
Imperial Breeding Farm	1312	1231.75	Georgia

Twenty Highest Rhode Island Red Pens in Country to February 1

Owner	Eggs	Points	Test
E. B. Parmenter	1391	1477.50	Maine
H. J. Hardin	1401	1424.45	Georgia
G. B. Treadwell	1372	1423.60	Maine
J. J. Warren	1340	1415.65	Long Island
W. H. Wilson	1434	1412.50	Georgia
L. D. Bartholomew	1321	1391.05	Storrs
E. B. Parmenter	1347	1390.30	Long Island
Missouri Valley Hatchery	1265	1371.95	Missouri
W. H. Wilson	1350	1363.15	Georgia
J. J. Warren	1269	1361.80	Maine
J. J. Warren	1297	1361.05	Texas
J. J. Warren	1319	1355.75	Florida
J. J. Warren	1342	1345.00	Georgia
E. B. Parmenter	1297	1341.40	Passaic, N. J.
J. J. Warren	1309	1338.85	Storrs
E. B. Parmenter	1320	1337.20	Georgia
J. J. Warren	1261	1335.80	Missouri
J. J. Warren	1304	1324.00	Maine
E. B. Parmenter	1318	1322.15	Paterson, N. J.
George A. Pearce	1326	1311.90	Passaic, N. J.

Twenty Highest New Hampshire Pens in Country to February 1

Owner	Eggs	Points	Test
Colonial Farms	1297	1361.75	Texas
T. J. Harrold	1336	1330.35	Georgia
James H. Horne	1218	1285.70	Storrs
Williamson's New Hampshire Farm	1223	1268.05	Florida
C. D. Cummings	1312	1244.35	Georgia
George A. Pearce	1252	1229.45	Hunterdon, N. J.
A. J. Williams	1209	1210.55	Florida
W. G. Ashby	1175	1208.50	Arizona
Pine Mt. Valley Farms	1247	1188.35	Georgia
M. L. Estabrook	1165	1179.05	Maine
T. J. Harrold	1177	1173.60	Georgia
Hubbard Farms	1139	1172.15	Pennsylvania
Joachim Breeding Farm	1114	1154.00	Long Island
A. L. Frees	1124	1152.45	Arizona
Williamson's New Hampshire Farm	1116	1146.90	Florida
Rhodes Hatchery	1142	1145.10	Florida
Gold Spot Hatchery	1105	1137.15	Arizona
James H. Horne	1099	1132.35	Maine
Pine Top Poultry Farms	1190	1127.50	Georgia
George A. Pearce	1148	1104.30	Passaic, N. J.

Twenty Highest Barred Plymouth Rock Pens in Country to February 1

Owner	Eggs	Points	Test
T. N. Wilcox	1433	1489.25	Georgia
T. N. Wilcox	1209	1255.35	Florida
Dryden Poultry Breeding Farm	1231	1239.75	Storrs
David T. Cohen	1121	1173.00	Pennsylvania
David T. Cohen	1115	1168.35	Arizona
J. W. Schaible	1166	1157.10	Hunterdon, N. J.
David T. Cohen	1122	1151.00	Georgia
P. N. Hibbard	1197	1143.90	Storrs
A. J. Urquhart	1117	1140.70	Storrs
Dryden Poultry Breeding Farm	1143	1127.15	Pennsylvania
David T. Cohen	1127	1120.75	Storrs
E. B. Parmenter	1097	1116.45	Pennsylvania
Fuzzydele Farms	1103	1113.15	Storrs
Dryden Poultry Breeding Farm	1099	1096.35	California
Dryden Poultry Breeding Farm	1052	1086.40	Missouri
Fuzzydele Farms	1038	1083.80	Central New York
Foster Jameson	1039	1082.40	Maine
Booth Farms and Hatchery	1072	1065.00	Georgia
Booth Farms and Hatchery	998	1038.35	Missouri
Penn's Poultry Farm	1043	1034.00	Texas

Twenty Highest White Plymouth Rock Pens in Country to February 1

Breed	Eggs	Points	Test
Albert C. Lawton	1203	1157.55	Storrs
Kalerok Farm	1090	1141.60	Rhode Island
Carter-Dunham	1107	1120.10	Texas
Airy View Farm	1070	1080.30	Hunterdon, N. J.
Drumm Egg Farm	1059	1077.90	Georgia
Carter-Dunham	1071	1044.70	Georgia
Carter-Dunham	1000	1029.75	Storrs
C. W. Winkler	983	1006.90	Oklahoma
Colonial Farms	956	1003.50	Oklahoma
Alfred Mac Millan	1010	985.25	Texas
Booth Farms and Hatchery	1018	983.10	Texas
Riley Poultry Farm	1066	982.25	Michigan
Gene-Garden Poultry Farm	996	970.05	Maine
McDonald Hatchery	922	954.05	Texas
Booth Farms and Hatchery	899	949.80	Missouri
H. J. Zweier	967	940.60	Pennsylvania
Drumm Egg Farm	917	936.50	Georgia
Townsley Trapnest Farm	924	935.70	Georgia
John Spangenberg	948	934.55	Maine
Hillview Imperial Farm	936	917.15	Storrs

Average Production in Each Test to February 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Jan.	Per Cent Mortality to date
Georgia	1,300	80.05	77.98	23.37	1.76	7.00
Texas	1,300	78.08	77.89	23.90	1.15	4.69
Arizona	390	76.16	77.74	24.48	1.28	4.10
Storrs	1,300	75.64	75.98	24.09	1.46	4.07
Pennsylvania	1,027	75.28	74.79	23.83	1.55	5.06
Florida	1,248	74.83	74.56	23.90	1.76	4.40
Hunterdon, N. J.	650	74.14	74.04	23.94	2.46	5.69
Rhode Island	546	69.46	71.83	24.81	1.09	4.57
Passaic, N. J.	1,014	68.40	67.53	23.66	2.76	4.53
Paterson, N. J.	169	65.53	65.51	23.97	6.50	7.10
Maine	975	66.44	65.34	23.59	2.15	5.12
Oklahoma	650	64.77	63.32	23.44	1.84	5.84
Missouri	780	59.76	62.44	25.05	2.94	7.43
California	650	60.15	59.84	23.88	1.07	3.07
Long Island	1,131	59.51	58.21	23.47	1.32	3.27
Western New York	884	52.15	52.53	24.16	1.47	4.07
Michigan	780	52.53	50.52	23.06	2.69	9.23
Central New York	910	51.43	50.32	23.47	1.09	3.95
All Tests	15,704	67.79	67.40	23.85	1.73	5.06

High Pen, Each Breed, in Illinois Non-Standard Test to February 1

Owner	Breed	Eggs	Points
Belldear Hatchery	White Rock	590	604.70
Walter Swanson	White Leghorn	614	589.20
Illinois State Hatchery	New Hampshire	524	529.75
Wallace Moody	Buff Rock	522	510.00
Belldear Hatchery	White Wyandotte	473	505.65
Harless Hatchery	Barred Rock	489	491.40
Welch Hatchery	Rhode Island Red	428	425.80
Illinois Hatchery	Brown Leghorn	335	353.40
Berry-Ajax Hatchery	Black Australorp	307	294.65

High Pen in Each Breed, Vineland, N. J., Hen Test to February 1

Owner	Breed	Eggs	Points	Class
J. J. Warren	Rhode Island Red	533	580	Two-Year
J. A. Hanson	White Leghorn	470	509	Two-Year
Vaughn's Hatchery	New Hampshire	439	473	Two-Year
Eben Wood	Barred Rock	371	403	Two-Year
E. R. Rutter	White Rock	330	356	Two-Year
J. A. Hanson	White Leghorn	305	329	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	127	138	Four-Year
J. J. Warren	Rhode Island Red	76	80	Four-Year
Dembro Poultry Farm	White Leghorn	536	585	Mixed-Age
Schwegler's Hatchery	Barred Rock	382	406	Mixed-Age
Wene Chick Farms	New Hampshire	284	308	Mixed-Age
E. B. Parmenter	Rhode Island Red	247	263	Mixed-Age
Quimby School	White Rock	244	250	Mixed-Age
Schwegler's Hatchery	White Wyandotte	185	197	Mixed-Age

High Pen in Each Breed, Vineland, N. J., Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	4474	4764	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	4424	4658	Two-Year
Eben Wood	New Hampshire	3663	3954	Two-Year
Eben Wood	Barred Rock	3651	3919	Two-Year
E. R. Rutter	White Rock	3634	3767	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	6819	7368	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	7652	8262	Four-Year
J. J. Warren	Rhode Island Red	7067	7589	Four-Year

High Pen in Each Breed, Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Lindstrom Poultry Farm	White Leghorn	4241	4517.60	Two-Year
Crooks Farm	Rhode Island Red	4134	4389.35	Two-Year
E. B. Parmenter	Barred Rock	3740	3889.55	Two-Year
Schwegler's Hatchery	White Wyandotte	3734	3845.90	Two-Year
Claribel Henault	White Rock	3574	3691.20	Two-Year
Pine Top Poultry Farms	New Hampshire	3521	3685.70	Two-Year
Schwegler's Hatchery	White Leghorn	6618	6946.35	Three-Year
J. J. Warren	Rhode Island Red	6336	6824.20	Three-Year

High Pen in Each Breed, Pennsylvania Hen Test to February 1

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	542	594.00	Two-Year
Schwegler's Hatchery	White Wyandotte	519	556.20	Two-Year
Crooks Farm	Rhode Island Red	509	555.45	Two-Year
E. B. Parmenter	Barred Rock	455	490.90	Two-Year
Claribel Henault	White Rock	425	458.85	Two-Year
Pine Top Poultry Farms	New Hampshire	393	421.40	Two-Year
Schwegler's Hatchery	White Leghorn	482	519.95	Three-Year
J. J. Warren	Rhode Island Red	382	417.65	Three-Year
R. H. Barteaux	White Leghorn	487	529.40	Mixed-Age
E. B. Parmenter	Rhode Island Red	404	440.90	Mixed-Age
E. B. Parmenter	Barred Rock	433	470.60	Mixed-Age
Fuzzydele Farms	New Hampshire	328	356.60	Mixed-Age

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NATIONAL

POULTRY DIGEST

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Vol. 3, No. 28 April 15, 1941

Easter Egg Tradition and Superstition

By HAZEL REGAN

Condensed from International Baby Chick News

THE custom of coloring eggs at Easter had its origin thousands of years ago. Although it is now connected with the great Christian celebration of Easter, the practice is older than the Christian religion itself.

The oldest written records trace the "Easter" egg back to some 5,000 years before Christ, when the ancient Pharisees exchanged colored eggs at New Year's festivals which were held in the early spring to celebrate the beginning of their new year.

As Easter came at approximately the same time, the custom was adopted by the Christians, and the colored egg today is the traditional symbol of Easter.

Nearly every country in the world colors eggs at Easter and many amusing and interesting customs have grown about the practice. It is said that in Andorra, a small country situated between France and Spain, an unusual custom exists among the young people.

The youths make bets with the maidens as to who, on Easter morning, can first catch the other and cry out, "It is Easter; the eggs are mine." The forfeit usually is a number of colored eggs. All kinds of tricks, falsehoods and deceptions are permitted; a young man may even surprise the maiden in bed if

International Baby Chick Assn., 3718 Broadway, Kansas City, Mo.
(International Baby Chick News, March 1, 1941)

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he can succeed in doing so.

Young folks then assemble in public and the winners collect their bets amid a great deal of shouting and laughter. The young people relate the tricks they played and the youth who has been the most audacious receives the plaudits of the group. They then eat their Easter eggs, finishing the day with songs and dances.

In parts of England, a young man would ask a young lady for an Easter egg, and if she refused he removed her boots and would not return them until the forfeit was paid. Turn about was also fair play, and the girl snatched the young man's hat unless he, too, gave the colored eggs she demanded.

During the reign of King Edward I in 1805, one of the items on the roll of the expenses of the royal household was "four hundred and a half of eggs, 18p," (app. 30¢). This is interesting, not only because of the trivial cost of so many eggs, but because so large a number were colored and distributed just among the royal household.

It was once the custom for the boys and sometimes grown-ups to dress themselves in fantastic style on the night before Easter and go about the village asking at each door for Easter or "pace" eggs.

In Russia it was the custom for men and women on Easter Day to greet one another with a kiss and give a red egg saying "Christ is risen." During the Easter holidays, noblemen and the servants of the Czar kissed His Majesty's hand and received in return gilded or red eggs, according to their station; those of the highest rank three, the middle two, and the most inferior one.

Medieval Superstitions

Many superstitions have arisen in connection with Easter, some of which may be found today.

Jack and the beanstalk, like many other familiar nursery stories, is founded on an ancient Aryan myth thousands of years ago.

The Aryans, who worshipped the sun, colored their eggs gold to symbolize this life force. One of the hero's feats was to steal the hen that laid the golden eggs (the sun) from the giant's castle in Cloudland (the sky).

Even the beanstalk has a special significance, for the Aryans regarded the plant as sacred.

In England it was believed that eggs laid on Good Friday kept fresh all year and would bring good luck to their owners.

It was once considered by many very unlucky not to wear some new article of clothing on Easter as it was otherwise thought the birds would spoil their clothes. Little does milady realize when she joins the Easter parade in her newest finery that she is carrying on so ancient a custom with so ignominious an origin.

Fact Hiding Rather Than Fact Finding Official Laying Tests

By HORACE DRYDEN
Modesto, California

Excerpt from a Booklet

OVER a period of years I don't suppose anyone has supported egg laying tests more faithfully than ourselves. We have often "taken the stump" in favor of the principle of official public laying tests and helped organize such a competition in California, starting October 1, 1940. The laying tests have treated us well and we have no regrets for having in the past 20 years spent a rather considerable sum of money in participating in these tests. But it has been my rather painful observation in recent years that the average American laying test has been sadly indifferent to the necessity for progress.

Due to my connection with the California test, it is with reluctance that I undertake a criticism of the other tests, but I believe the facts I am to present should be presented and by a friend rather than an enemy of the principle of official testing.

False Values Created

The worst thing that can be said about egg laying tests today is that they have created false values. When all the average breeder thinks of is winning a test or securing a few high official record individuals to adorn his advertising, surely he is being diverted a long ways from his goal. When all a breeder can advertise is "contest winnings" and when "300 eggers" are still glorified, as the result of the emphasis placed by tests on individual records, then one wonders if laying tests have not ceased to be an influence for good in the poultry industry.

Who in the poultry business today cares if a hen lays 30 or 31 eggs in a month? Who cares if a hen lays 300 or 350 eggs in a year? Who cares if one pen of 13 hens averages 300 or 350 eggs in a year?

Commercial poultrymen want stock with high average annual production and livability. They are not so gullible as to believe that any one hen or pen can indicate sources of such stock.

The laying tests could offer a rather accurate indication of the ability of different strains to meet commercial requirements and in

From the Booklet, "Three Obstacles to Poultry Improvement in the United States," Published by Horace Dryden, Modesto, Calif., March 3, 1941

this way serve a very useful purpose and justify their existence, but, in the writer's opinion, they are falling a long way short of the mark. In fact, there is good reason to believe that the poultry industry would be a good deal better off and that breeders would be stimulated to come out of the clouds and get down to earth if most of our present tests were either discontinued or reorganized.

Bred-to-Lay Hen Dramatized

The laying tests, or "contests" were an outgrowth of the old exhibition shows. Someone conceived the idea of having chickens compete against each other in egg production instead of in form and feather. The idea was originally a publicity gesture to dramatize the bred-to-lay hen, and at a time when many doubted that chickens could be bred to produce more profitably, this dramatization perhaps served a useful purpose.

One of the first egg laying contests was conducted by the Philadelphia North American, a newspaper.

While the need for dramatics has long since passed, the average laying test is still organized on dramatic or showmanship principles, is operated in a rather hit and miss manner, and is about as useful to the poultry industry as the BB gun is to the modern army. I do not deny that showmanship, even today, may serve some useful purpose, or that the tests have made some improvement in procedure in recent years in respect to emphasizing size as well as number of eggs and in partially eliminating alternates.

Our average test today, however, is about as far out-of-date as the handlebar mustache, and as much in need of streamlining. One is amazed that practically all of these tests are conducted by educational institutions, which ought to be in the forefront of progress. One wonders if some of these institutions are overgrown with moss and their intellectual attics encumbered by cobwebs.

I know that some of the tests are inadequately financed, but the improvements which seem necessary would add little to their operating costs. If no additional funds whatsoever are available, better to close up shop than to do a half job or a poor job, for anything worth doing is worth doing well.

Element of Chance Great

A fundamental and serious defect of laying tests, as conducted today, is that they simply are not tests. They are for the most part legalized gambles or lotteries with the element of luck and chance playing such an important part in results that they are only a poor and inconsistent criterion of breeding and production quality. Let me hasten to add that when we have won laying tests, or when we had the highest national contest average one year, the second highest another year and the third highest in one year, that I was not unmindful of the fact that Lady Luck, as well as breeding, was on our side.

Let me also add that I am not referring to the honesty of contest managers which, I am sure, cannot be questioned.

Laying tests should be conducted with laboratory precision. Exactly similar conditions should be provided each entry, as nearly as is humanly possible, if results are to mean anything. A scientist will go to extremes and take infinite pains to insure that any comparison he seeks to make between methods or substances will be a fair and an honest one. In my observation of laying tests, I have never noted any unusual effort to obey this fundamental tenet of scientific fact finding. Even the equipment is not always similar for all pens. At one test, half the pens face one way, and half the other. Some of the pens get morning sun, and others afternoon sun. All the pens are under one roof, with an alley down the center and pens on each side of the passageway —a most efficient arrangement for spreading disease, and one which has usually proved disastrous, I believe, wherever tried. Nevertheless, in the designing of this new plant, comfort of attendants seems to be what was considered rather than control of bacteriological infection.

If an accident occurs in the process of a scientific test which may effect the result of the test, the scientist either stops and starts over or makes suitable notation of the happenings so that a proper interpretation of results may be secured. This is another primary tenet of accurate testing.

A few years ago one of our pens that was doing well had the misfortune to start pecking at some wall board that had been freshly painted with creosote. Needless to say, production came to an abrupt stop and some mortality resulted. At another test, a blizzard occurred and the roof blew off the small house in which our pen, which was in first place, was housed, giving the birds a good all night soaking and putting them out of the running. This year one of our pens was badly blistered by coming in contact with fresh creosote on roost perches.

Incomplete Reports

The above facts were obtained from the laying tests in question only upon inquiry and were not reported in the official results. I have wondered how many other breeders have had their hopes dashed by wind or creosote of which no public mention was ever made. I hesitate to make these personal references, but I know other breeders have had similar and even more astounding experiences in sending carefully bred stock to "official tests."

In view of the important strides that have been made by pathologists in recent years in identifying poultry diseases which are preventable through good management and sanitation and in developing effective eradication and control measures, it is almost unbelievable that the California test is at this late date the only one in the country which demands a high health standard and which refuses to accept entries showing evidences on arrival of communicable diseases. At all of the other tests, breeders with clean stock, particularly those whose flocks are free of infectious colds, are seriously penalized by the lax and careless sanitary and health measures practiced. Laying tests should take the lead in encouraging breeders to rear healthy stock as well as to breed good stock. Certainly, a test is not a test if virulent, preventable infectious diseases are permitted to influence records.

Another Breeder's Views

Too many of our tests are tests of coughing, sneezing and gasping, rather than of laying ability. I recently received a letter from one of the best breeders in the United States, a former winner of the "Poultry Item Trophy," on answer to my query why he no longer entered tests. He stated that he had cleaned up his own farm of virulent bronchial infections and having seen conditions existing at some of the tests, he would not consider entering, under any circumstances, until the laying tests likewise showed some interest in disease control.

Accept Sick Birds

On what basis can laying tests justify their present acceptance of entries showing virulent infections on arrival? The health situation is made particularly precarious and unfair to owners of clean stock by the practice, amazing for this day and age, of dumping two entries from different farms together in the same pen with no attempt at isolation. This would not be so objectionable if it were possible to breed immunity to all diseases. Then the laying tests could also be disease resistance tests, providing, of course, that meticulous care was taken to expose each entry to exactly the same degree and type of infection. But no evidence is at hand that resistance to such virulent and infectious diseases as colds and tracheitis or intestinal coccidiosis can be bred into poultry.

Since modern health precautions or adequate sanitary practices exist at few of the tests, the result only too often is what one could expect—disease epidemics and high mortality, with the pen winning which happened to be most fortunate in avoiding infection. And I do not deny that at times we have been very lucky in this respect.

Laying tests have probably done as much, aside from the exhibition shows, to spread dangerous poultry diseases as any other one thing. In this way they have been, and still are, a disservice to the poultry industry. Any breeder who will reintroduce to his flock birds that have been at any of our typical present day tests is courting painful disaster.

Laying tests can be made reasonably safe and fair from a health standpoint by the adoption and acceptance of the elementary principles of disease control. It is time that they were doing it.

Another valid criticism of our present tests is that the pen size, 13 birds, is too small to prevent a considerable element of chance from influencing results. Double this number, or 26, would give results on an average probably three times as mathematically significant. As a compromise, 20 birds would give results probably twice as significant and valuable. Twenty birds would also be better from an accounting standpoint than the freak number of 13, which is a mathematical monstrosity.

More attention should be given to averages for a number of pens from one breeder and averages over a period of years. Who cares today what one small 13-bird pen does in one year? What ten or twenty 20-bird pens averaged, however, over a period of two or several years, would carry some significance.

I know that the objection will be raised that a larger size entry will work a hardship on the small breeder. Speaking frankly, however, a poultryman who cannot spare 20 or 25 pullets is in no position to sell breeding stock, and ought to stay out of laying tests until he can qualify as a bona fide breeder. The question is simply whether a laying test should be a circus performance and a plaything or an instrument for good in the poultry industry.

Most contests seem more concerned about getting entries and keeping their pens filled than in developing a genuinely useful project. Why attempt the job if it can't be done right?

Forcing Methods Undesirable

There is also serious question as to whether the official laying tests are on sound ground in using lights and force feeding methods, which have a tendency to cover up the inherited tendency towards winter pause, which is such an important breeding problem.

The new procedure of the California test in candling and grading, as well as weighing, all eggs on a basis of market value, in recording feed consumption and feed costs for each pen, and in basing awards on actual earned income, undoubtedly represents a milestone in the progress of public laying competitions. Commercial poultrymen want stock which will not only lay a lot of eggs, but which will lay good eggs and lay them at seasons of highest egg prices. On what other basis can tests designed to serve the poultry industry be conducted? And yet our typical laying test provides little of the information so important to commercial poultrymen.

There is nothing wrong with the principle of official egg laying competitions. Properly operated, so as to provide absolutely fair conditions for each entry and accurate data on the performance of the various breeds and strains, with awards based on factors which affect the profit and livelihood of commercial poultrymen, they can serve the industry as a yardstick of breeding progress and as an inspiration and incentive to breeders.

Production Rate and Feed Prices

Is the price of feed rising in your community? What difference does 5 cents a bag make to the poultryman? To the poultryman who keeps Leghorns, it means that every dozen eggs produced is increased in cost by 0.3 to 0.4 of a cent, depending on the rate of production. With the heavy breeds, the increase in cost of producing eggs is from 0.4 to 0.5 cents per dozen, again depending on the rate of production.

Depending on the rate of production! The poultryman can do little to control the price of feed, but he can do a great deal toward controlling the rate of production. A nickel a bag; a half cent a dozen; these amounts seem insignificant. In relation to what can be done to reduce cost by increasing rate of production, they are indeed small. More rigid culling, and rearing pullets bred for egg production are essential when feed prices rise. Increasing the rate of laying from 25 per cent to 50 per cent production will reduce the cost of producing eggs by 5 to 15 cents a dozen. The higher the price of feed, the more important is the rate of production, for the higher the price of feed, the more you reduce cost by increasing production.

—T. C. Byerly, Maryland 1941 Poultry Yearbook.

POULTRY dealers are getting a laugh out of this one: Two high school girls went to the store this week to pick out a chicken. The clerk asked if they wanted a frying size or stag. "What is a stag?" one of the girls asked the other. "I don't know, unless it is a chicken without a date," was the reply.

—Topeka (Kans.) Daily State Journal.

Funds for Consumer Education

By T. S. TOWNSLEY

Bucyrus, Ohio

Reprinted from Smith's Chickagrams

ALTHOUGH the Poultry and Egg National Board is making a fine start at getting financial support for consumer education, it should be realized that only a small start has been made, and that definite plans must be worked out for raising much larger sums if the work is to be permanently effective.

Some $30,000 was pledged for the first year's work, and reports indicate that about $26,000 has been paid in. These contributions were made by interested individuals, firms, and associations, and while they represent many different branches of the industry, they come from a very small per cent of those who should benefit from any improvement in consumption which may result from the work of the Poultry and Egg National Board.

These original pledges were made with the understanding that most of this money would be needed for organizing a program, and that much larger sums must be provided to carry out worthwhile educational programs. Probably a somewhat larger sum could be raised by subscriptions, now that the work is started, but subscription financing is expensive and uncertain, and places an undue burden on public spirited givers, while a great many of those who benefit bear no part in the support of the work.

An Industry Tax is Needed

In all probability, if a campaign of consumer education is to be carried out for poultry and eggs, some equitable method of spreading the cost to a large share of those who benefit will have to be worked out. There are two possible ways of doing this. One is to assess the costs against the different units of the industry on the basis of capacity or volume of business. The other is to establish an industry tax on some item or items that enter into common use in the industry. In a number of states, the poultry improvement work is financed by a combination of tax and assessment. In Ohio, the U. S. Approved Hatchery Program is supported by an assessment on each cooperating hatchery on the basis of a certain amount per 1,000 egg capacity, and by a tax on each leg band used by the hatcheries in marking their

From "More Funds are Required for Consumer Education" (Smith's Chickagrams, January, 1941) breeding flocks. This plan has been in operation in that state for some 16 years and has proved equitable, effective, dependable and relatively painless for raising an ample sum for keeping the project well financed.

What to Tax

So far as the hatchery industry is concerned, it seems that an industry tax on baby chick boxes is the logical way for the hatchery group to raise their share of the National Budget for Consumer Education. It would, of course, have to be a voluntary tax, but if a suitable emblem was devised which could be used only by those supporting the cause, box manufacturers should have little difficulty in collecting the tax from those hatcherymen who wanted credit for supporting the campaign.

It is estimated that approximately 4,000,000 baby chick boxes are used each year in the United States, and a small tax on each box, which would not be burdensome to any hatchery, would raise a considerable sum. Since there is every reason to believe that chick boxes will be used regularly from year to year, such a source of revenue would be permanent after it was once established. Each different group in the poultry industry should adopt a financing plan that best fits the group.

There is not much question but what the principle of assessment on capacity or volume of products, or a tax on some product widely used, or a combination of the assessment and tax, is the logical way to raise a fund for stimulating poultry and egg consumption.

Items in common use that would appear to lend themselves readily to an industry tax are leg bands, egg case fillers, feed bags, and storage boxes for dressed poultry.

Ample funds for an intensive and sustained drive to increase consumer interest in poultry and eggs can be easily financed if the various branches of the industry line up on some sensible plan for raising their share of the budget.

A FLOCK of Bantams flirted with death for several days on a 2300 volt line in an electric sub-station. The chicks were quickly grabbed from their perilous roosts after the juice was turned off. Electricians feared they would establish contact with each other, completing a power circuit that would roast them and darken the city.
—Western Poultry Journal, January, 1941.

TAKING a philosophical attitude regarding England's egg shortage, one London housewife is reported to have asked another: "Do you think you're wise to carry both your eggs in one basket, dear?" says Eggs, London poultry publication.

Poultry in Hawaii

By JOHN E. PERRY
Hayward, California

Reprinted from Pacific Rural Press

FIFTY to fifty-five cents per dozen for eggs on the farm, and thirty-five to forty cents per pound for roasters!

Sounds like a poultryman's Heaven, but I saw such prices being paid last summer and there was nothing wrong with the checks in payment. Of course, those poultrymen have a few troubles that we don't have (there really are some poultry troubles that we don't have), but I think most of us would be willing to put up with a lot of troubles for prices like that.

Last August I took a trip to the Hawaiian Islands. I decided to find out if there were such a thing as a poultry industry there. Hawaiian folk not only have a thriving poultry industry, but in some respects they are ahead of us here in California.

The bulk of the poultry industry is on the island of Oahu, in and around the city of Honolulu. Most commercial poultrymen are Japanese. Only recently, some of them have begun to raise poultry exclusively.

Climate Warm and Humid

There are several unique conditions in the Hawaiian Islands which have greatly hindered the raising of poultry. One is the climate. The warm and very humid conditions which prevail the year 'round create a housing problem. Also, as a result of the climate, there are innumerable insect pests which bother the birds and carry disease. Due to the scarcity of land, it is not practical to free range birds. All poultry feeds are imported, adding to the expense of raising birds.

Add to all of these difficulties the fact that many of the poultrymen do not speak English and have no idea of the meaning of such words as vaccination, immunity, moulting, etc., and you can see that any one trying to improve the poultry industry would have quite a job on his hands.

However, poultry improvement is continuing. The first step is to get the birds off the ground. Houses are built on stilts, about three or four feet off the ground, the birds living on wire. There are no solid sides to the houses, all being screen or lath. The University approved house is constructed in units for 125 hens and costs around $100 to construct.

Pacific Rural Press Co., Los Angeles and San Francisco, Calif.
(Pacific Rural Press, Feb. 8, 1941)

Once the birds are off the ground, it is found that about 75 per cent of their troubles are licked. Droppings are cleaned from under the houses about every ten days. Although there are still many beetles and other insects, in and around the droppings, they do not cause much trouble.

Automatic water founts have made their appearance, thus cutting down on the labor. The same general feeding procedure is used as here, with the exception that I saw no greens being fed. Nests must be of open construction and easily cleaned because of insect pests. In any well run poultry plant now, the birds never touch the ground. Livability and production records are comparable to, if not better than, ours in California.

Pox used to be one of the greatest sources of loss in birds. Mosquitoes carry the disease and infect the chicks when less than a month old. Now all chicks are vaccinated when a week or ten days old and this trouble has been eliminated.

Eye Worm Infestations

Another large loss used to occur from eye worms. These are very small worms which gather and grow in the eye, causing swelling, blindness and eventually death. The carrier for these worms is a large beetle frequenting the droppings. Getting the birds off the ground has eliminated this trouble to a large extent. Incidentally, this eye worm is interesting in that it is the only worm I believe which is in the carrier in mature state. That is, if you catch and open one of these beetles, you may find it full of live and wiggling eye worms. Tests conducted have shown the amazing fact that these worms will appear in the eye of a hen within 15 minutes after she has eaten one of these beetles.

There is very little paralysis as we know it. At the present time, however, a lot of trouble is caused by "big livers," presumably a related type of disease. As yet, no effective cure or preventative has been found. Other troubles include gizzard worms, some lice, and, of course, tape and round worms.

Poultrymen in California would do well, I believe, to study the raising of birds on wire from time of hatching. With our climate, even greater sanitation could be effected.

Buy Hatching Eggs

There are several large hatcheries in the Islands and many small ones. As yet, it has not been found practical to run breeding flocks in the area. Most of the hatching eggs are shipped by steamer from the mainland, a trip of only five days. Sexing of day-old chicks came into use for the first time last fall. White Leghorns are the most popular laying breed. New Hampshire Reds are the most popular meat bird.

The Hawaiian Islands are an import market as far as egg consumption is concerned, most eggs coming from California. At the present time about half the eggs consumed are produced on the Islands. Over a period of years, housewives in Hawaii have come to prefer Island eggs. Local eggs command a premium on the market. Large extras were retailing for 65 cents when we were there. Poultrymen in and around Honolulu received an average price of 53 cents per dozen. Even with the increased cost of feed (40 cents a bag higher than here) I think you will agree that they are doing right well for themselves. The industry has room for expansion for some time to come.

Prefer Large Meat Birds

Poultry meat production is not as greatly developed, but several plants are raising New Hampshire Reds to about five pounds for market. With the rapid growth they obtain and favorable prices existing, they manage to show a nice profit. Broiler prices are very poor, due to lack of demand for small meat birds.

There seems to be relatively more interest in laying batteries in the Islands that there is on the Pacific Coast. The reason, of course, is the necessity for keeping the birds off the ground and the high cost of construction for shelters. I saw a number of fine installations of laying batteries, some imported from California and others locally constructed. The usual set-up is to build them three levels high with a capacity of about 200 birds. In most cases, there is only a roof over the cages, no side walls whatsoever. To date they seem to be working very well. In one unique battery system, a breeding flock was being kept. There were four hens to a cage and one rooster was used for six pens, being rotated every day for six days, and then given one day of rest.

Size of Turkeys

Columns have been written and a world of publicity given to the fact that "the market demands a smaller turkey." It is pointed out that families are smaller, that the modern oven will not hold the big turkeys, and that a vast untapped potential turkey market awaits the growers who will put an 8-pound hen and a 12-pound tom on the market. Perhaps all that is true, but the reaction of the practical grower to all this is: "Who will pay for the small turkey?"

There is the story in one sentence. Here in the West we sell wholesale. We get so much a pound, and the heavy tonnage lies in our toms. At the Utah Experiment Station several years ago, Professor Alder figured that, because it took more pounds of grain to make a pound of gain in a hen turkey than a tom, a grower would have to get about 5 cents a pound more for the hens to break even on the sexes. Yet the average of the holiday prices showed toms 22 lbs. and over selling within about 4 cents of the average hen price at New York.

Any time the market really wants a small turkey and is willing to pay for it, there are plenty of growers who will produce them. But so far, particularly in western markets, no such differential exists. In fact, a recent market comment from San Francisco was to the effect, "Demand was best for large hens and toms." Another story said, "Small hens draggy." It is the current opinion that more turkeys went into general family consumption this year than ever before.

There is also a reason here, The myth that the large turkey cannot go into the modern oven has been thoroughly exploded. With the modern type of bird, a compact, heavily fleshed specimen, a 20-lb. tom will easily fit into a 16-inch roasting pan and that pan in turn goes easily into an 18-inch oven, the average size small electric oven that operates in most apartment houses. Surely, you must handle the bird properly, cut the neck off between the shoulders, baste the legs forward and against the body, but that is the way it should be done.

Until some better proof is offered as to small turkey profits, the western growers will continue to do as they have the past few years; make their best money from big turkeys.

—Norbest Turkey News, February, 1941.

Dirty Eggs Don't Get Premiums

One of the bug-a-boos of the poultry business is the problem of merchandising "clean eggs." Carelessness on the part of the producer is the main reason for "dirty eggs" and his inability to cope with the situation causing the trouble is one which could be discussed all evening. However, one of the main reasons so many producers ship eggs which aren't exactly right is because it requires a little more work to keep the straw or nesting material changed at regular intervals. Some poultrymen would rather sit around in the afternoon cleaning each egg than place fresh nesting material in its proper place. Better think it over—dirty eggs are never sold as premium eggs!

—San Diego Poultry Journal, Feb. 10, 1941.

Preventing Hatchery Fires

By C. A. REHLING

Condensed from Hatchery Tribune

A FIRE during the hatching season means that months of preparation and hard work have gone to waste. The break in service to your customers means an unprofitable year. You are unable to capitalize on mid-season demand for chicks and make a profit when a profit is needed. Such a fire might even cause you to lose part of your steady customers.

The majority of fires are preventable. A few hours spent in investigation now may reveal hazards which could cause a fire.

Most hatchery fires are from the following preventable causes and conditions: Electrical defects; defective chimneys and improper installation of heating equipment; kerosene incubators and oil brooders; poor housekeeping; careless smokers; faulty or inadequate fire-fighting equipment. We will deal with each of the above briefly and make suggestions which, if followed, will reduce the possibility of a fire in your plant by a very great per cent.

Electrical Defects. Beware of the amateur electrician. Electricity is a highly technical subject. Unless a man is thoroughly trained and experienced he is apt to create dangerous electrical conditions. A competent electrician should check all wiring in your hatchery to make certain that it complies with the National Electrical Code. Among the electrical causes of fires are improper fuses, overloaded wires, electric cords hung over nails, cords coming in contact with other metals, broken fixtures, and loose or worn wiring. The cost of the repair of such items is a small item when compared to the results of a fire.

Defective Chimneys and Improper Installation of Heating Equipment. A chimney, worn with age and with cracks in the mortar, can cause more damage than a dive-bomber. By all means, have your chimneys and flues checked for any possible defects. Unless it is properly installed and protection is provided, your heating unit is also dangerous. If clearances between your heating unit (boiler, stove or furnace) and any combustible material are less than 48 inches in front or 18 inches at the sides or rear, the combustible surface should be protected with a screen of asbestos or sheet metal.

From "How to Prevent Hatchery Fires," Hatchery Tribune, February, 1941
Poultry-Dairy Publishing Co., Mount Morris, Ill.

Where a stove is installed on a combustible floor, it should stand on sheet metal which extends 18 inches in front of the stove and flush with the sides and rear. All smoke pipes and steam pipes should be at least 6 inches clear of woodwork or other combustible material.

Kerosene Incubators and Oil Brooders. In the past, the use of these has been dangerous. Fortunately, however, they are being replaced with more modern electric equipment. Where they are still in use, great care should be exercised in making them as safe as possible. The installation should be according to safe, standard specifications. Your insurance company will be glad to see that you get such specifications. The oil burner should be kept clean and a good grade of fuel used at all times.

Poor Housekeeping. Poor housekeeping is just what the name implies. Many of the same housekeeping rules apply to a hatchery as apply to a home. The fact that change in the rate from 5 cents to 25 cents is made for poor housekeeping will impress you with the importance of good housekeeping. Here are a few rules of good housekeeping:

(a) Prevent the accumulation of trash in basements, attics and unused corners. (b) Tear down loose-hanging wallpaper. (c) Keep loose excelsior in metal containers with self-closing lids. (d) Clean out open sidewalk grates and place ¼ inch wire mesh in them so that a carelessly tossed cigarette doesn't take its toll. (e) Replace any cardboard trash or ash boxes with metal containers. (f) Sweep and clean regularly. (g) Keep drip pans under the barrels of germicidals or kerosene which you keep for sale.

Careless Smokers. Unfortunately, careless smoking habits cost thousands of dollars each year. Careless disposal of a cigarette or cigar causes innumerable fires. This danger may be relieved somewhat by posting "No Smoking" signs and enforcing a no smoking rule on the premises.

Faulty or Inadequate Fire-Fighting Equipment. There should be at least one unit of private fire-fighting equipment for each 2,500 square feet of area on each floor of your hatchery. A unit consists of a 2½-gallon soda-acid extinguisher or a 5-gallon pump tank extinguisher. These are only effective on fires of ordinary materials. You should provide a 1 or 1½-quart carbon-tetrachloride extinguisher for each incubator and brooder room for use on electrical fires or oil fires.

Merely providing this equipment is not enough. It must be kept in good mechanical condition, ready for use. You can't hit many targets with a gun that isn't mechanically perfect or loaded. Soda-acid or foam extinguishers should be discharged,

inspected, and refilled at least once a year. If you are using water barrels and buckets, prevent the water from freezing, if necessary, by adding calcium chloride.

A great many fires are discovered in the early stages. You can prevent these from becoming large by providing adequate equipment and training your men in its use.

These are six hazards and conditions which cause fires in hatcheries. A fire from any of them is usually preventable, and, therefore, unnecessary. Remember, by reducing the loss from fires, you can reduce the cost of insurance. As you know, the loss is reflected in the rate charged.

Thin Shelled Eggs

Thin-shelled eggs may be due to an insufficient amount of calcium in the ration, to a lack of vitamin D or to a combination of an improper calcium content in the ration and an insufficient amount of vitamin D. If the laying ration contains only enough calcium and enough cod liver oil, or other vitamin D carriers, for normal production and the birds lay heavier than normal, it is conceivable that the system might be depleted of both calcium and vitamin D with the result that thin shells would be produced. Usually, however, there is an increase of mash consumption and vitamin D with increased production.

It should be realized, however, that birds out in direct sunlight with access to unlimited calcium carbonate will lay thin shells. This is sometimes referred to as "physiologically poor egg shell texture." At present, there is no explanation that can be made for this condition. Certain birds simply develop that condition and there is just nothing that you can do to remedy the difficulty. The best practice is to remove the bad offenders from the flock in case it is possible to locate them. Sometimes the removal of 5 per cent of a flock will reduce the number of thin-shelled eggs to practically nothing. The condition mentioned above may be an inherited characteristic, although the evidence is not too convincing one way or the other.

—R. T. Parkhurst, Featheredfax, March, 1941.

MRS. CELINA DONLIN of Frankfort, Mo., is the owner of an "egg-bush." Her oddity is a common shrub made to look as if it were covered with white flowers by sticking blown eggshells on the twigs.

Central Illinois Growers Solve Dressing Problems

By M. C. SMALL

Condensed from Turkey World

DURING the past few years, Havana, Ill., has become the center of quite a large turkey producing industry. At the present time, from 75,000 to 100,000 birds are being produced within a comparatively small area surrounding this town.

There are several reasons why turkey production has increased in this section. There is much sandy land which is ideal for turkey range. Fertile fields along the Illinois River produce great crops of grain. Shipping facilities are good.

As in most centers of great turkey production, there is a small group of leaders who have fostered and encouraged this development. The guiding light in this case is T. L. Jones, superintendent, Cinco Farms. Jones has fostered this industry by growing several thousand turkeys which have served as a demonstration to others. In addition, he advised and encouraged others, and a small group of leaders has been built up.

As this industry grew, growers found that one of their greatest problems was killing and dressing their birds. To solve this problem, they decided to pool their resources and build a central dressing plant.

The best location proved to be an old run-down stockyard. They leased this plant, rebuilt it, and installed modern dressing and storage facilities.

The dressing equipment consists of a commercial mechanized semi-scalding unit. It requires about 65 people to operate the killing and dressing line, which is capable of handling 1,500 birds per day. Storage facilities have been installed to accommodate about 8,000 birds at one time. Sharp-freezing refrigeration is available. Refrigeration facilities are provided mainly as a convenience in handling birds and not for storing for any great length of time.

No cooperative marketing has been done, as growers have not considered this as necessary or desirable. Growers may sell to anyone they wish.

Organization

Under the present plan of operation, members of the organization are charged a flat rate of 4 cents per pound for dressing and handling. This includes gathering up the birds from the farm, within 50 miles of the plant, and holding in storage for a few days until they can be sold. One-half cent of this amount goes for stock in the company. To become a member, a grower must agree to process at least 80 per cent of his birds through the plant for a period of five years. Birds of non-members are processed at a flat rate of 3½ cents.

Poultry-Dairy Publishing Co., Inc., Mount Morris, Ill.
(Turkey World, December, 1940)

As would be expected, the organization has encountered many difficulties in building up this plant. Money was needed to swing the deal. This was borrowed locally, but recently the project has been refinanced in the Bank for Cooperatives. It is interesting to note that 62 per cent of the original debt was paid after the first year of operation.

The organization has undergone its "growing pains" and has proven to be a success. Here is an example of how one group has solved its problems in a business-like manner.

Solving Litter Problems

If there is one thing I love to see, it is a household of birds singing, scratching, and kicking up the dust and litter. And if there is one thing I hate to see, it is a chicken house that looks like a pig pen. I have one or two in that condition now—pens that are temporarily carrying laying birds but are not properly laid out for the job. I know if I were a chicken I would hate wet feet, especially if the wet feet came from wet muck, out of which I also had to pick part of my meals. I also hate having to clean out pens in mid-winter, but what else is there to be done, if and when conditions get too bad?

One or two things I have learned about the problem around here. The first, perhaps, is that it is not so much the kind of litter you use as how much of it you use. This is a case where it does not pay to be stingy. A second thing is that dampness in laying pens is largely a question of ventilation. This matter of ventilation, however, is something of a fine art in itself. In part, it depends upon basic structural factors in the house itself. In perhaps an equal part, it depends upon the skillful manipulation of curtains and whatever ventilating devices you may have. And, finally, it depends upon the number of birds in the house. Usually it is the extra 25 or 30 birds that we try to crowd into a pen that are responsible for our litter worries, as well as a good many other troubles.

—Edmund H. Reeman, New Jersey Farm and Garden, February, 1941.

Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

April 1—Spring is here, there is no question about it. Three different persons either came out or phoned about poultry manure for their lawns. All day long, tenant farmers have been hauling household goods and farm equipment on the road. We have started repairing our drives and paths from the ravages of winter. Earl Wharton will bring a load of sand tomorrow for patching and top dressing.

Harold installed the tin can oil burning brooder stoves in the bended-bow brooder houses. These stoves have to be leveled north and south, then east and west. The pipe threads have to be soft soaped to prevent leakage. I am getting to be like some politicians — a soft soap artist.

April 2—The new manure trailer had to go to the blacksmith for tongue accessories, so it was tied to the bumper of the egg truck with a rope. It is a good thing John Brillhart's shop wasn't any farther away, for the tie rope was broken when I arrived. I think the little trailer was following along behind by faith as much as anything else. John was busy, but he will put the trailer hitch on the tongue tomorrow and then I will have it weighed. The tires are truck size 21 by 6.00 which makes for easy rolling. Harold and I were surprised at the ease with which the trailer can be moved. For a conveyor of manure, it is as easy to move as the rubber-tired wheel barrow, and that's saying a mouthful.

April 3 — The hardest wind and rain I have seen in a long time came this afternoon. The net results were flood waters all over the ranch, a washout on the road, a section of roof off of the east house, and part of the first floor of the barn flooded. Then the sun came out and I stood around in a daze wondering what had happened. We patched the road and cleaned out the wet litter in the barn. But I carry wind storm insurance on all the buildings, so I am going to let the insurance company take care of the roof. There is no use in carrying insurance and then paying the damage out of my own pocket. Well, I guess not.

April 4—This manure trailer is just about the neatest thing I have seen in a long time. I took the truck to John Brillhart to have a trailer hitch put on it. Then to a weighmaster for the official weight. It weighs 320 pounds and cost $21.00. The license tag cost $2.75. But it is cheap; t'would be cheap at half the price, for we would do more than $23.75 damage to the little truck in one year. Figuring on a life of 10 years, it will cost about $5.00 a year to haul the manure to the new farm. If I could figure on a profitable life of 10 years per bird, life would be still sweeter. But it doesn't work that way.

April 5 — All arrangements have been made to lay the hard cold cash on the barrel head in payment for the farm tomorrow morning at 10 o'clock. Due to complications beyond my control it will require the presence of Carl Hoover, representing the Martin family; Chas. Jones, representing the Winkler family; Dan Funk, representing the Louisville Land Bank; the Sheriff of Wayne Co.; the Auditor of Wayne County; Judge Saunders of the Probate Court; besides the Martins, Winklers, Chamberlins and Whites. Marie Schaffter, our local girl lawyer, will represent Verne and me. With such an array of legal talent, we thought it best to have a barrister to counsel us too.

April 6 — Of all the people in the world to whom it would be a poor policy to give a rubber check, a sheriff would be the worst. When I saw Sheriff Mills phone the bank to determine if my check was good, I had visions. I had visions of a big, bouncing rubber check and one big bounce for me into the hoosgow. But what the sheriff didn't know was that some fast ones had been pulled, that Cashier Robert Woods was on my side—if nothing went wrong. Sitting on a powder keg is no joke, at least not for me.

The manure trailer had its first practical test out this afternoon. It worked to perfection. Just about the neatest thing on the road, says I. Nothing less than tornadoes and high waters can keep us from hauling droppings now, with the rubber-tired wheel barrow and a trailer.

April 8 — After the night feeding was done, Kid White and I went down to the new farm. In accordance with the terminology used down along the Potomac, we call it the "Fike Farm Project." This gives a "high-faluting" title to a run-down farm bought at a sheriff's sale. Grass, weeds and briars are going to have a real treat. Three snorts of droppings to the acre ought to make them feel cockeyed.

April 9 — The three bended-bow-rafter brooder houses are all ready for chicks. All that has to be done is to fill the mason jar waterers and

Everybodys Poultry Magazine Pub. Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, April, 1941)

strike a match. The chicks will be here on the 25th, so we are in good time. The idea is to be prepared. Tomorrow we will start getting the other houses ready. The equipment has been hauled out to them. Several weeks ago, when the soil was frozen, Harold loaded the stoves, hoppers, fountains and litter on the little truck and delivered it. The first job is to distribute the equipment, giving each house its quota. Then, if it rains, we can work inside.

April 10—It is a nice warm spring day, really the first spring day we have had this year. This chick brooding is beginning to get in my blood. If this kind of weather keeps up, I know that I will get uneasy, fearing that real hot weather will swoop down at almost any moment. This chick brooding in hot weather usually ends disastrously for me.

April 11—This morning it looked like rain, so Harold and I cleaned the north house, the barn and the cow stanchions. Loaded all of the manure on the trailer with the expectation of taking it down to the Fike farm after dinner. But it rained; it did rain! And the loaded trailer is out in it. Now, I'll ask you, in all sincerity, won't that load be a pasty mess to scatter? At present, a heavy sleet is falling. I think we pulled a boner when we cleaned the houses today. If I were brooding chicks and had to pit-pat from one house to another on a night like this I would be a physical wreck by morning.

April 12—Just about 3 inches of snow this morning, and that is quite some snow. The state highway department came along and cleaned our road, so I took the eggs to the auction. The return load was cow feed, oyster shell, and a bag of dried milk.

A few days ago, while setting up one of the brooder stoves, Harold came across a stove bolt that had rusted fast in the hover. He tried soaking it with a rust cutting solution, let it soak for a couple of days, but it snapped off when he tried to remove it. There was only one thing to do then, the old get out and get under stunt. The hover was dismantled and John Brillhart drilled the bolt out and rethreaded the hole. When the stoves are dismantled this summer, those particular bolts are going to receive a double shot of oil.

April 13 — Harold and I cleaned the east and west houses in an hour. Thirty minutes later he was home again, after scattering the droppings on the Fike farm, which is 2½ miles down the road. This manure trailer is the berries. The soil back of the two laying houses was too soft to support the little truck and the trailer, so we had to use the rubber-tired wheel barrow. The trailer is built so low that the wheel barrow can be pushed up a gang plank and the contents dumped without any additional handling. This saves time.

April 15—The soil is so wet that it is well nigh impossible to get out on it, especially if it is bare. Harold is very clever in hauling manure down to the Fike farm. He seems to be able to skim over the sod in the old orchard and never cause a ripple. Two big loads of manure were hauled and scattered this afternoon. The effects of liberal applications are already in evidence. The grass is getting green. This is especially true in the home pasture. But 60 tons to the acre in three winters ought to make anything turn green.

April 16—We are gradually getting the brooder houses ready for the chicks. It will take only a few hours more and we will be sitting Jake. I don't like this last minute rush.

April 17—Harold did some more work on the brooder houses in the forenoon. This afternoon we just took care of the stock. The weather forecast for tomorrow is for more rain, and I am puzzled about this week's cleaning. It isn't very pleasant to scatter manure in the rain and if it rains much worse, we will have a hard time getting in the orchard at the Fike farm.

April 18—Pulling a loaded trailer over "soapy" land is no joke. That is what happened to Harold and me when we took a load of manure down to the Fike farm late this afternoon. It looked like rain, so we decided to clean the boards and scatter the residue. The soil is comparatively firm, but the greasy or soapy effect is just in the top inch. The wheels of the little truck spun around like nobody's business, but we didn't mire down. But we are getting foxy about hauling on soft fields. We took the rubber-tired wheel barrow along and did the actual scattering from it.

The neighbors seem to think it quite a joke when they see the empty truck pulling a trailer loaded with droppings, and the wheel barrow riding along on top of the load. But the point is that we have all of our manure scattered. From the looks of some of our local barn yards, there hasn't been very much hauling done lately.

April 22—Walter Buss and I held a grass roots conference and decided that I had better get the chicks May 2 and 9 instead of April 25 and May 2. Weather conditions have been such, and the forecast is the same old six and seven, that brooding chicks under my conditions is a rather hazardous project. I have never brooded chicks so late in the season, but, on the other hand, the season is late, too. The probabilities are that I will come out at just about the same end of the hour.

April 25 — It really isn't cold enough to maintain a fire in the block house, but we are trying to keep just enough fire to take the chill off of the drinking water. The watering device is hooked up to the hot water heating system. 'Way deep down close to the cob, I think that the main reason for maintaining this fire is to burn dead stock. The block house is centrally located and we don't have to carry a dead weight load so far to the incinerator. They are great labor saving pieces of equipment, these incinerators. Without them, I would have the whole ranch dug up in chicken graves.

April 29 — I guess a chicken man should know how to do well nigh all kinds of work, but I was stupefied at my own ignorance when I stepped on the end of a loose board on a scaffold today. I was painting the siding on the Fike farm house when it happened. Howard Cobbler's gang was putting on new siding and I was painting it before it rained. Falling off the scaffold would be a mere bogatell if one didn't hit the ground so quick and hard. As a top dressing, the paint bucket fell with me. I packed eggs tonight as long as I could stand it, but I couldn't cut the mustard so to speak. I am as sore and stiff as an old horse.

Seasonal Variations in Egg Prices Less

Seasonal variations in egg prices and egg receipts are no longer as pronounced as they were a quarter of a century ago, Alfred Van Wagenen of Cornell University reveals in the January 1941 issue of Farm Economics.

"During the last five years," Van Wagenen points out, "the highest prices for eggs have been paid during the latter part of October, compared with the latter part of November, a quarter century ago.

"During the past 25 years, there has been a decided reduction in the amount of seasonal variation. Fall and winter eggs do not bring such high prices as formerly, and spring and summer eggs are not so cheap. Formerly, the November price was about two and one-half times the price in April and May; whereas in recent years, the highest price has been only 1.6 times the lowest price.

"This decrease in the violence of seasonal price fluctuations was associated with a decrease in the violence of fluctuations in receipts. There are relatively more winter eggs and fewer summer eggs than formerly. In recent years, May receipts have been about two and one-half times November receipts, whereas formerly they were 5 times as great."

Ways of Supplying Vitamins A and D

By **RAYMOND T. PARKHURST**

Massachusetts State College

Reprinted from Feedstuffs

OBSERVATIONS on the vitamin A and D outlook have been so numerous and so conflicting that most feed men and poultrymen find themselves "up in the air" on the subject. It is difficult to bring the situation up to date, because it is changing constantly. However, at the time of writing (January, 1941), some phases of the outlook appear to be different from what they were during the latter part of September or the first part of October, 1940. The volume vitamin D market has apparently dropped below the $1.00 per 1,000,000-unit price by at least 5 cents or 10 cents, indicating that there may have been an overbooking in 1940, that no immediate shortage is anticipated, and/or that new sources of vitamin D are being found.

There have been a number of possibilities suggested recently relative to the vitamin D situation by the nutrition committee of the Northeastern Poultry Producers Council, in case war with Japan should curtail the importations of tuna livers or tuna liver oils. The preparation of larger supplies of D-activated animal sterols for fortifying purposes might be possible. An expansion in this direction is already indicated. The commercial production of cholesterilene sulphonic acid, a promising antirachitic substance, may be hastened.

Methods Other Than Feeding

The restriction of the feeding of vitamin D fish oils during the summer time, when natural irradiation is available, the use of more special window glass and window glass substitutes to allow the ultra-violet rays to pass through, and artificial irradiation by quartz mercury vapor or "sun" lamps are possibilities which the committee thinks might also be considered. The committee expressed the hope that serious attention would be given to the development of new sources of vitamin D in this country and to a further study of the value of irradiation from sunlight and from artificial sources.

Apparently, the irradiation of cholesterol has reached a production basis and the amount of vitamin D produced at present is equivalent to several million gallons of cod liver

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oil. As all the materials and patents are of domestic origin and the supplies of raw materials are plentiful, it would seem that progress is being made toward making the United States independent of other countries in vitamin D supplies.

More high potency liver oils are being offered to the trade, and indications are that supplies of high potency liver oils are ample to carry through to May and June, 1941, when the tuna fishing season starts again in Japanese waters. It would seem that the only factor keeping the price of vitamin D up where it is now is the fear of what may happen in our foreign relations during the next few months.

Sardine Oil Price Increasing

Sardine oil has increased in price. One explanation is that the demand for it for poultry feeding purposes came after extensive purchases had been made for industrial uses, such as paint and soap making. It is estimated that about a third of the sardine oil goes for poultry feeding and two-thirds for industrial purposes. Another reason is the indication that the catch of sardines will be about 25 per cent lower than last year. The important reason, I think, is that those who have the sardine oil can get more for it from those who think they have to have it. Whatever the exact reason, fortified sardine oils (400 D, 3,000 A potency) have advanced about 2 cents per pound over last September.

Because vitamin D in the ration is costing the poultryman more money, he is going to try many ways of reducing or avoiding the price he has to pay. He will undoubtedly try to get all the sunlight he can. He may use glass substitutes (special window glass that allows the ultra-violet rays to pass through) or he may let his birds outdoors instead of confining them as usual. Feed men may meet this situation by offering mashes containing half the amount of vitamin D carrier used in rations for confinement.

These are half measures, and only when the sunlight is abundant is it safe to eliminate the vitamin D carrier from the mash entirely. Sun lamps which produce ultra-violet rays can be used, and the vitamin D they set up through the irradiation of the animal tissues of the head and feet of the bird is effective. However, their use is not as practical and economical as fortified oils at the present relative price levels of oils and S4-type bulbs. Having a reliable vitamin D carrier in the mash has proved pretty dependable for a great many years, and there should be strong justification before a change away from it is made.

Vitamin A Situation

Vitamin A is much the most important consideration right now. It takes more vitamin A to fortify sardine or menhaden oils than it does

cod liver oils, because they have a materially lower vitamin A potency. It seems as if everybody has been wanting vitamin A recently, including pharmaceutical houses here and abroad, as well as those who wished to fortify poultry and animal fish oil products. As a result, the price of vitamin A has risen.

There are other reasons. In spite of its expansion, shark fishing continues to be poor on the Pacific Coast. If next year's catch is normal or better, there should be ample supplies of shark liver oil to meet all needs. It is anticipated that the price of vitamin A will for some time be as high as or higher than at present.

There was a "mixed" reception from the trade to the suggestion that the use of a fortified oil of 1,500 to 2,000 vitamin A units per gram potency would normally meet our eastern poultry conditions as well as the 3,000 vitamin A unit potency, which is usual in "400 D" fortified oils. The present high price of fortified oils of 3,000 vitamin A and 400 vitamin D unitage is going to drive many feed mixers and poultrymen away from them to try substitutes, just as the scarcity and high price of dried skim milk brought about the development of new products and a probable permanent replacement of much of the dried skim milk formerly used in poultry rations. Reasonably priced, carefully produced, chick-tested, fortified cod liver, sardine, or "feeding" oils of the right potency will do much to maintain a demand for fish oil vitamin A and D products.

Sun Lamp Studies

"Sun" lamps provide no vitamin A to the ration. In a recent report on their use from the Ohio Agricultural Experiment Station, there were no indications of vitamin A deficiencies when the all-mash chick starter contained 50 per cent coarsely ground yellow corn and 5 per cent dehydrated alfalfa leaf meal. With normal carotene contents, double the minimum vitamin A needs of the chick were supplied by this ration. For layers, the ration contained 20 per cent coarsely ground yellow corn and 5 per cent dehydrated alfalfa leaf meal. If good products are used, as they were here, it is to be expected that the carotene content of the ration will be ample to meet the needs of the layers.

In similar experiments at the University of Nebraska, where sun lamps also adequately provided vitamin D, the vitamin A needs of the laying pullets were met by 20 per cent yellow corn and 10 per cent good quality alfalfa meal in the mash of a scratch and mash ration.

In various experiments, the needs for layers and breeders have been carefully studied. The minimum requirement for good health, good egg production and strength to carry through the molt is approximately

400 U. S. P. vitamin A units per 100 grams of feed (1,900 units per pound). For sustained egg production and high hatchability, 600 units per 100 grams (2,725 units per pound) is enough.

If a fortified oil having a potency of 400 A. O. A. C. chick units of vitamin D is used, it would be advisable to include in a commercial all-mash or complete laying ration a level of 0.2 of 1 per cent to supply the needed 80 A. O. A. C. vitamin D units per 100 grams (360 units per pound). If the oil also contained 2,000 U. S. P. units of vitamin A, the all mash ration will carry 400 U. S. P. units of vitamin A per 100 grams of feed (1,900 units per pound). Double these amounts would be used in the mash of scratch and mash rations. In addition, there is usually some yellow corn meal and alfalfa leaf meal in the ration. The approximate carotene content of these feeds is 7 and 70 units, respectively.

Assuming that an average ration carries 30 per cent yellow corn and 2½ per cent of alfalfa leaf meal, the vitamin A values per 100 grams of feed will be increased 210 and 175 units, respectively, or about equal to the 400 units, supplied by the oil. Such a ration will produce the light to medium colored yolk desired by many buyers for the New York market and should supply adequate vitamin A, even after two months' storage. When there is no advantage in avoiding the dark yolk caused by larger percentages of yellow corn meal or alfalfa meal, there can be a larger proportion of these carotene-bearing feeds used, if desired. If a feed manufacturer is using ingredients of known carotene or vitamin A content, he naturally has the advantage over the feed mixer who lacks that knowledge of his ingredients.

Storage Losses

Alfalfa meal, yellow corn meal and oils all lose some potency on storage, especially during hot weather. With alfalfa meal, there is only a slight loss at the end of seven to nine months if paper lined burlap bags are used. According to studies made at Ohio Agricultural Experiment Station, there is very little loss in the carotene content of yellow corn when stored for one year, whether in the whole, cracked or ground form. Destruction of vitamin A from cod liver oil and carotene from alfalfa leaf meal, when mixed into a ration, is not complete even after six months' storage in a heated, well-lighted room.

If feed is stored two months, half again as much vitamin A is probably needed as in fresh feed. When the potency of a fortified oil is 2,000, instead of 3,000 U. S. P. units per gram, there is greater need for care in deciding the level of alfalfa meal to use and in choosing its quality. If actual carotene determinations are not possible, alfalfa leaf meals are safer than alfalfa meals, high protein than low protein meals, and rich green is preferable to light or pale green color in alfalfa products.

Liver storage tends to be higher in birds the higher the vitamin A intake, although this is not true with individual birds. New Jersey Experiment Station investigators have shown that low vitamin A or carotene liver storage is not necessarily indicative of a dietary deficiency. Results of liver storage studies in commercial flocks, unless accompanied by other indications of vitamin A deficiency, do not indicate an inadequate consumption of vitamin A. High vitamin A liver storage due to high vitamin A intake probably is of some value, but certainly is not a guarantee against disease.

The desirability of a high level of fortified cod liver oil in the ration was indicated by studies at Pennsylvania State College when natural coccidiosis broke out in experimental pens. Birds getting high levels of oil maintained better body weight and egg production. This was an abnormal condition. The requirements of vitamin A previously given were for normal needs. Whenever there is a disease outbreak. It is safe to assume a greater requirement for vitamins A and D and to supplement the usual ration immediately with double or triple the amount required normally. This is especially true of vitamin A. Every poultryman should have some extra oil on hand or be sure he can get it on short notice.

Fortified Feeding Oils

Just a word about fortified feeding oils: Just as fortified sardine oils were not considered as reliable as fortified cod liver oils when they first appeared, the same is true of the fortified feeding oils. Their record of reliability will speak for them. It should be considered that they are newly created "war babies" which may be of unrecognizable origin and of questionable procedure or legitimate products of refinement. Time only will tell whether they are equal to the best in fortified cod liver oils or sardine oils.

In conclusion, supplies of carrier and fortifying oils seem adequate at present, the vitamin D situation seems to be easier, and the price of vitamin A is apparently rising. There is ample proof that practical rations can be made with alfalfa meal and yellow corn as the only sources of vitamin A. Intelligent use of fortified oils of 400 A. O. A. C. vitamin D and 1,500 to 2,000 U. S. P. vitamin A units per gram should reduce the cost of commercial poultry rations, resulting in a saving to poultrymen without any unfavorable effects on health, growth, production or reproduction in the poultry flock.

Crowding is Costly

By H. L. RICHARDSON
University of Delaware

Reprinted from Everybodys Poultry Magazine

THE biggest single item of cost in growing a lot of chicks is feed. The next item is probably the cost of the chick. Then comes fuel, then labor, then the charges for the use of buildings and equipment.

There may be some argument as to whether some of these charges are listed in the right order. There can be little doubt, however, that interest and depreciation charges on buildings and equipment are among the smallest items. For this reason, it is hard to understand why the majority of poultrymen and broiler growers continue to crowd during their brooding operation.

Absolute proof that crowding is expensive was obtained during late 1939 by the Delaware Extension Service from the Delmarva broiler growers. The study shows, specifically, the results of this practice. These records come from 130 different flocks, aggregating nearly 600,000 chickens, and appear in the accompanying table.

Proof of the Pudding

The figures presented appear to indicate that the number of chicks per stove is associated with mortality. Also, the 300 to 400 chicks-per-stove group grew a 3.12 pound broiler in 13.4 weeks, as against a 2.73 pound broiler in 14.4 weeks in the lots where 500 or more chicks were brooded per stove. Note also that there was a difference of six-tenths of 1 pound of feed to produce 1 pound of broiler between these same groups. This study showed clearly the advantages of allowing more floor space.

Let's forget scientific studies and apply a common sense measure that everyone has seen. The majority of poultrymen accept the rule of allowing 3 to 4 square feet of floor space per hen for their layers. Three square feet for a 4½-pound Leghorn equals 1½ pounds of chicken per square foot of floor space. Four square feet for a 6-pound Red or Rock gives the same answer. Yet it is not uncommon to see 300 to 400 chicks raised to a 2½-pound average in a house with 200 square feet of floor space, or less. Figure it out. As much as 4 or 5 pounds of chicken per square foot of floor space is the answer instead of the 2 pounds or less for layers.

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One of the most obvious effects of crowding, whether of a laying house or brooder house, is the problem of ventilation and moisture control thus created. Wet floors, walls and ceilings, ammonia fumes, and foul air generally are some of the results.

Such conditions lower the resistance of the birds and lead directly to the spread of such diseases as colds and coccidiosis. While much too little is known about good poultry house construction and ventilation, and while much less is practiced, it is to be seriously doubted if it is possible profitably to construct and ventilate poultry houses that will keep the air clean and fresh, and the house itself dry and sanitary, when it is overloaded with birds. The load on the ventilation system is too great, however well it is built and managed.

Crowding and Bossism

Bossism is a relatively new "ism" as applied to poultry. The desire to "boss" someone else is as inherent in chickens as in other animals, humans, included. Social stratification in a flock of chickens is achieved in the same manner as in a group of boys. Some are "champs" that whip all comers. Others respect the champ, but boss those in the classes below. Those at the bottom find tough going.

"Bossism" in the poultry flock can hardly be prevented, but its results will be magnified in proportion to the number of birds in one flock and to the degree of concentration and confinement. Its results are seen in the flock in the form of uneven growth, runts, and "scabs." Such birds get that way by being literally "hen-pecked." They are able barely to get food enough to maintain life; they become susceptible to disease and are unprofitable.

Crowding Aids Disease

Crowding never produced poultry diseases. It only renders chickens more susceptible and sets the stage for spreading them. Certain types of coccidia infection, for example, are encouraged by the degree of concentration of chicks on a given area.

Effect of Crowding on Mortality, Weight and Feed Consumption

Number of chicks per stove	Number* of flocks	Per cent died	WHEN SOLD		Lbs. feed per Lb. broiler
			Avg. age (weeks)	Average weight	
300 to 400	27	6.0	13.4	3.12	3.75
401 to 500	79	11.0	14.1	2.93	4.13
501 & over	15	12.4	14.4	2.73	4.37
Average**	130	10.1	14	2.94	4.07

* Only 122 flocks gave accurate figures on the number of chicks per stove.

** Average figures include all accounts even where the number of chicks per stove was not given.

Other conditions resulting from crowding, such as moist floors, encourage their development and reduce the resistance of the birds. It is a far cry from the old hen with a dozen chickens to the concentrated conditions found on the average commercial poultry farm. One would certainly not suggest going back to the setting hen, but I venture the opinion that we will be looking for a cure for coccidiosis as long as poultrymen crowd as here defined.

Crowding and Temperature

During the first two or three weeks of a chick's life, it has two basic requirements — a good ration and the right temperature. Up to that time, it is not giving off enough moisture and foul air to create a serious ventilation problem. Temperature is all-important. While under the hover during this period, especially at night, the chicks seek the temperature that best meets their needs.

Around the brooder stove is a ring where the temperature is right. On the inner side of that ring next to the stove, the temperature is likely to be too hot. On the outside of the ring, the temperature is nearly always too cold. Here is the point—when there are more chicks than can find a place where the temperature is right, some get chilled, others get overheated. Either causes indigestion, and the poultryman's troubles begin.

One and one-half pounds of chicken per square foot of floor space is about the limit for the average house and for the average poultrymen. Two pounds is the limit. This recommendation is based on brooding records and upon laying house conditions where 3 or 4 square feet per layer is allowed. More than this inevitably leads to wet houses and foul air at certain periods.

The above recommendation (1½ pounds of chicken per square foot) immediately places in a false position any statement regarding the proper number of chicks per stove. This is for the reason that 400 chicks may be all right for the first two or three weeks and all wrong when they get to weigh a pound each. Good results with 400 chicks per stove are possible if the number of chicks is reduced before or at the time the 2-pound limit per square foot is reached. However, 300 chicks per stove appears to give better results with flock replacement brooding, provided cockerels are removed before 10 weeks.

Crowding contributes, directly or indirectly, to poorly ventilated and wet houses; to coccidiosis, colds, and bronchitis; to uneven growth, poor feathering, and a poor quality product; to high mortality, slow rate of growth, and high feed costs. A good rule is to brood 300 chicks to each good brooder stove and never allow more than 2 pounds of chicken per square foot of floor space.

POULTRY RESEARCH

Vitamin B6 and Chick Nutrition

Three different simplified diets prepared for studies on deficiency diseases of chicks showing symptoms of anemia, dermatitis, and perosis were greatly improved when vitamin B6 was added, report A. G. Hogan, L. R. Richardson, H. Patrick, B. L. O'Dell, and H. L. Kempster of the University of Missouri in Poultry Science (Vol. 20, No. 2). The amount of vitamin B6 required by baby chicks to sustain the maximum rate of growth is probably over 300 and less than 500 micrograms per 100 grams of food, says the report.

Chick Growth and Selenized Grains

Several areas of South Dakota produce grains high in selenium. To determine the effects of selenium in chick rations, a series of tests was conducted by W. E. Poley, W. O. Wilson, A. L. Moxon, and J. B. Taylor of the South Dakota Agricultural Experiment Station.

Chicks receiving 2 parts per million (p.p.m.) of selenium in their ration grew faster than those receiving no selenium, in five out of six trials, says the report in Poultry Science (Vol. 20, No. 2). There was evidence that 10 p.p.m. of selenium adversely affected the growth rate of chicks, and 14 p.p.m. caused excessive mortality and reduced growth. It is recommended that starting and growing rations contain not more than 5 p.p.m. of selenium, as the maximum level at which naturally-occurring selenium could be satisfactorily fed proved to be 8 p.p.m.

Restricted Feeding During Rearing and Effect on Body Weights

Restricted mash feeding during the growing period from 10 weeks of age until 22 weeks of age when the pullets were housed resulted in lower body weight than the pullets raised with free access to mash, according to H. Temperton and F. J. Dudley of the National Institute of Poultry Husbandry. The results are published in the Harper Adams Utility Journal, Vol. 26, No. 2.

The control group in the experiment had free access to mash and a feed of grain in the evening lasting for 15 minutes. The second and third groups received per bird each day 85 per cent and 70 per cent, respectively, of the average amount of mash consumed per bird by the control group on the previous day; they were given each day the same amount of grain per bird as that consumed in 15 minutes by the control group on the same day.

The body weights of the birds of

the 85 per cent group at 22 weeks of age averaged from 1.18 per cent to 6 per cent less than the control group, while those in the 70 per cent group averaged from 2.7 per cent to 12 per cent less than the control group. There was no difference in health or livability between the groups.

Tapioca Meal for Laying Hens

In searching for wartime poultry feed substitutes, the British have tested various products as feedstuffs. Tapioca meal was subjected to an experimental study by H. Temperton and F. J. Dudley of the National Institute of Poultry Husbandry, Newport, Shropshire, England. Their results were reported in the Harper Adams Utility Poultry Journal, Vol. 26, No. 3.

A ration containing 40 per cent tapioca meal gave as good results as the control ration in body weight changes and mortality, but egg production was slightly less. Feed consumption of the tapioca group was less than that of the control group. There was no evidence of constipation, nor any pasting up of the beak which it was believed would occur because the addition of tapioca meal made a very finely divided mash.

Water Consumption of Hens

Consumption of water for two groups of White Leghorn hens was 18.2 and 18.3 gallons per hen per year, and, for two groups of Rhode Island Red hens, 19.8 and 19.9 gallons per hen per year, in experiments carried out by Burt W. Heywang, U. S. D. A. Bureau of Animal Industry, reported in Poultry Science (Vol. 20, No. 2).

As a result of evaporation, the apparent water consumption was about 1 gallon greater per hen per year. Evaporation from an open-top drinking vessel 12 inches in diameter was 26.1 gallons at Glendale, Ariz., between Nov. 1, 1934 and November 1, 1935. Increases in air temperature, live weight and rate of egg production tended to increase water consumption.

Disinfecting Egg Shells

So that soiled eggs or eggs of unknown origin might be successfully disinfected before being placed in the incubator, I. Y. Pritsker, Bashkir Institute of Agriculture, Ufa, U. S. S. R., developed a technique by which liquid disinfectants may be used without appreciably influencing the hatch, says Poultry Science (Vol. 20, No. 2).

Eggs cooled to 8 or 10 degrees C. are immersed in a disinfectant solution heated to about 25 degrees C. The solution warms the egg, causing increased internal pressure, which prevents the disinfectant from passing through the shell. Eggs are placed in the incubator to dry, and remain there for the incubation period. A 0.5 per cent formalin solution was used in the experiments with no appreciable detrimental affect on hatchability.

Interior Egg Quality and Fresh Cereal Grass

As much as 120 grams per day of fresh cereal grass fed with a typical all-mash laying diet, or an all mash laying diet that contained 24 per cent of dried cereal grass had no harmful effect on the interior quality of eggs, as measured by the albumen index, per cent of firm albumen, and yolk index, in tests at the Beltsville Research Center of the U S. D. A., report Charles A. Denton and Harry W. Titus in Poultry Science (Vol. 20, No. 2).

Effect of Heat on Availability of Proteins in Soybeans

Heat treating soybeans seemed to improve the availability of the entire protein fraction in tests conducted by J. W. Hayward and F. H. Hafner, Archer-Daniels-Midland Co., Minneapolis, Minn., says Poultry Science (Vol. 20, No. 2). The protein of raw soybeans was effectively supplemented by either 0.3 per cent of cystine or 0.3 per cent of methionine, but a combination of these amino acids produced no additional improvement in protein quality.

Body and Egg Fat Studies

The fat in laying hens is derived primarily from starch in the ration and not from protein or fat, conclude G. Davis Bruckner, W. M. Insko, Jr., and Amanda Harms in Poultry Science (Vol. 20, No. 2). In work at the Kentucky Agricultural Experiment Station, it was found that when there is a limited quantity of starch in the feed, egg yolk fat is deposited before body fat, indicating that nature's first consideration is for the production of normal progeny.

Fowl Paralysis and Feeding

Fowl paralysis is not caused, directly or indirectly, by the feed or feeding method. Investigators who have addressed themselves to the task of studying the problem are virtually unanimous on this point. Yet, statements to the contrary occasionally appear.

The German Ministry of Health, Veterinary Division, instituted a series of exhaustive inquiries into the relation of feed to fowl paralysis. Dr. L. Heyding reports (German Agricultural Poultry News, Vol. 40, No. 53) that these tests, without exception, yielded negative results, thus further confirming the already generally accepted fact that neither feed nor feeding method influences the occurrence or severity of fowl paralysis.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1941.

White Egg Yolks

White egg yolks were produced at the Experimental Farm of the British Scientific Poultry Breeders Association, Rudgwick, England (Annual Report). The ration used contained no yellow corn and alfalfa meal. Vitamin A was supplied by fish oil.

In comparison with eggs of normal color, the "white" yolks hatched equally well. There was no difference in the livability of the chicks. The chicks produced from the "white yolks" had white shank color. It is pointed out that white or pale shanks in young chicks is not necessarily an index of low vitality or of constitutional weakness.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1941.

Presence of Male Birds in Flock Said to Reduce Mortality

Mortality is supposed to be higher in flocks without males. Quoting the German Poultry News (Vol. 41, No. 39), English reports claim that the death rate in an Egg Laying Contest has been markedly reduced ever since the practice was adopted to place males into contest pens. The theory is advanced that less pecking occurs among the hens in the presence of males and that the males, in general, have a quieting, harmonizing influence. The same source also states that the frequently observed poor fertility during the second year can be avoided to some extent by mating the pullets the first year. Such a simple remedy sounds too good to be true. Yet, it might be well to check into it.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1941.

Duck Egg Hatchability

Duck eggs with a "fatty deposit" on their shells were found to hatch about half as well as eggs with "dry shells," and should be considered undesirable for incubation purposes, reports I. Y. Pritsker of the Bashkir Institute of Agriculture, Ufa, U. S. S. R., in Poultry Science (Vol. 20, No. 2).

The reduction in the hatching percentage of eggs with "fatty deposits" usually takes place at the expense of an increase in the embryonic death rate during the first three weeks of incubation. Among the ducklings hatched from eggs with "fatty deposits," there was always a greater number of weak and deformed ducklings.

Vitamin D Needs of Ducklings

The vitamin D requirements of White Pekin ducklings are approximately the same as those of chicks, conclude James C. Fritz, Wallace Archer, and Donald Barker, Borden Co., Elgin, Ill., in Poultry Science (Vol. 20, No. 2). Optimum calcification will be produced when ducklings get 30 A. O. A. C. chick units of vitamin D per 100 grams of feed, says the report.

Bloodtesting Methods Compared

Bloodtesting methods for pullorum disease were compared at the Veterinary Research Station, Lethbridge, Alberta. Out of 3,861 diagnoses, the rapid, whole blood test showed an agreement of 92.4 per cent with the tube agglutination test. In each test series, the whole blood test showed more "positive" reactors. The authors conclude that with chickens, the two tests yield equally satisfactory results (Scientific Agriculture, Vol. 21, No. 6).

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1941.

Price Cutting

Sometimes we're convinced that the curse of farming (and Poultry) is that, generally, we are too "bighearted" when it comes to pricing our wares. We lack confidence in the quality and value of our goods.

About this time each year, and sometimes earlier, many hatcherymen and some breeders begin to get jittery about their ability to sell chicks, and start selling below cost of production. Selling chicks at a loss does no one any good. It may be a temporary gain for the buyer, but the industry is hurt, and in another year or two that same buyer may be hurt also by getting his chicks from the same or a similar source and find that the hatcheryman has had to cut corners to make up for bad selling practices.

Even in usually high-price sections like New England, we find an occasional breaking out of bad selling methods. High quality breeders get worried and offer male chicks as low as 5 and 6 cents each in March and April. Fortunately, this is not widespread, but there is enough of it to cause a continual barrier to the establishment of fair chick prices in line with quality, under conditions existing at the time.

Poultry meat prices have been firm and the broiler producer can make a fair profit on 9 to 11 cent broiler chicks. The egg producer, paying a little more for good chicks, can either make a small profit on his broilers or cut down on the cost of his pullets, whichever way he figures.

Generally speaking, we feel that fair prices are sound business and that cut prices do more harm than good. We feel the same way about market egg prices and we have been urging the government strongly to buy eggs under their parity program at a price that will show a profit, rather than a loss, for the specialized egg producer. Their program is not consistent if they don't do just that.

—Poultry Item, April, 1941.

VIEWS OF THE EDITORS

Louisiana Purchases

Last month a man working for the extension press service of Louisiana State University sang to farmers of his state the old dirge about mixing their own feed and saving 35 per cent. He told how a pound of gain on a chicken cost 7.2 cents with home mixed feeds and 10.3 cents on commercial feeds.

He did admit that the gain was not so fast with the shovel mixed feeds.

He said nothing about the number of eggs produced by each bird. He did say that home mixed feeds cost $2.25 per 100 lbs., and the average of commercial feeds $3.33.

He did not say that the cost of gain by turning the chickens loose on a neighbor's oat field would be almost nothing per pound.

At this point we yawn and stretch, and turn to our little cost calculator to show this man of the self-sufficient farm plan where the holes are in his dandy little feeding scheme.

Our chart shows that if you feed these hens $2.25 feed, your feed cost per 100 hens each day is about 50 cents. With $3.33 feed your feed cost is about 75 cents.

On home feeds you are lucky if you get 35 eggs a day out of these hundred hens. Forgetting for the moment that these eggs will start coming later on slower working home feeds, we find that feed cost per dozen eggs, on this basis, amounts to 17 cents. On the $3.33 feed, if it is as good as the price indicates, the farmer will get about 60 eggs a day. This will make his cost slightly less than 15 cents per dozen eggs.

We must agree that if a farmer wants hens just to have them around and see them grow, he would be foolish to buy prepared feeds. But if he's determined to make some money with them, he had better buy at least the concentrate to feed with his grains.

The reasons commercial feeds usually are better and are often only slightly higher in price, have been mentioned before, but, to summarize again is probably worth while in the face of this new blast.

Home-mixing farmers buy their feed ingredients from dealers, large and small, who pay $2 to $6 a ton more for those ingredients than the mixer does who can buy in car lots. Then, if the farmer follows a good, rich formula, he will find that this dealer probably has not got the cod liver oil, the milk, and the other ingredients so important to a balanced ration. If he does have these incorporated in a single product, he probably is just out of something else and will try a substitute.

Then, when the farmer gets back among his mixing tubs, only the hen herself knows what kind of stirring job he did when she gets her bill full of salt. When the hen goes after her few grams of feed every day, it's quite important that she get a little bit of everything.

If the only consideration in driving a car is to get cheap mileage, it is possible to limp along on 11 cent gas. But if you're in the race, trying to get there first and trying to keep the machine in shape, the higher priced, balanced gas may be the best.

—Feedstuffs, March 8, 1941.

Producers, Eat More Eggs

We don't vouch for the truthfulness of the statement; fact is, we would be rather ashamed to, but a well-known statistician recently said that the families of farmers with good-sized flocks of poultry eat fewer eggs and less poultry than city families of the same size. We will admit, however, that we have seen some evidence to the same effect.

Eggs, it should be known, are rich in the needed minerals, iron, copper, phosphorus, and calcium, and in the necessary vitamins A, B1, D, and G; richer than almost any other food. Therefore, when the egg producer takes eggs to town, before his family's needs are supplied, and trades them for some kind of meat, he may be beating his family, especially his growing children, out of needed sources of health and growth.

There are so many tasteful ways in which eggs can be prepared for the table as "eggs," not to mention the many opportunities to improve other dishes by adding eggs, that there seems to be no good reason why the average producer should not consume more of his own product than he now does. And he would be getting better food cheaper. Moreover, he would very likely wipe out the surplus in short order.

—Poultry Herald, March, 1941.

Eggs May Go to Britain

Since the passage of the Lend-Lease Bill and the subsequent appropriation of seven billion dollars to aid the British, the egg market has become firmer. A decline in receipts is one factor which has strengthened the market, but the government's program of "all-out" aid to Britain seemed to firm market sentiment immediately.

Aid to Britain will include food as well as the tools of war to resist Hitler. The British Isles have looked to their dominions for food, and little has come from the United States. With the heavy shipping losses being sustained, the English have to release their ships from the long hauls from Australia and concentrate upon getting their food supplies quickly from the United States and Canada. This was predicted by Vice-President Wallace about a year ago, while he was secretary of agriculture.

More than a billion dollars of the money appropriated to help Britain will be allotted to food. There is nothing definite to indicate the extent to which eggs may be purchased, but it is highly probable that eggs, particularly dried or frozen types, will be included in substantial amounts. Lack of feed has severely curtailed poultry flocks in England, and eggs have reached the luxury class.

—Everybodys Poultry Magazine, April, 1941.

Produce More Efficiently

The Farm Policy at Washington, which is designed primarily to help five or six crops (mainly grains), is unfair to Poultrymen—to use a labor union term.

True, there are some offsets like Surplus Buying and the Stamp Plan, but prices are based on low U. S. average price levels which are below cost of production for the specialist. Poultry workers in Washington are doing all they can, but they are hog-tied by laws that are not favorable.

If the business man cannot sell for cost-of-production-plus, he closes shop or cuts production. If the worker feels the pinch of rising living costs, he strikes for higher wages. The poultryman, by reason of the scattered nature of the business, takes it on the chin. He is dealing with life. He cannot close the doors or slow down the feeding (of the egg machines) unless he expects to be sold out entirely.

In this business, through conditions and standards that have been forced upon us, we cannot slow down without losing our shirt. Efficient production is high production and we must take our chances on wearing out the machines—yes, fowl and human machines.

—Poultry Item, April, 1940.

TURKEYS should be started early if you expect them to be mature and free from pin feathers by Thanksgiving, says Frank Priebe in his weekly letter.

After a woman has spent two or three hours taking the pin feathers out of a Thanksgiving turkey, you can't blame her for not wanting to see one again for another year. There's no doubt that people would buy turkeys more often if the birds were marketed only when they were mature and free from pins.

A BERLIN, Germany, citizen, convicted of stealing chickens during a blackout, was saved from the death penalty only because there wasn't an air raid on at the time of the theft. As it was, however, he was sentenced to six years in prison for his crime, according to newspaper reports.

Checking Market Grades with Meat Measurements

By H. M. SCOTT
University of Connecticut

Condensed from U. S. Egg and Poultry Magazine

IRRESPECTIVE of the standard applied, it must be admitted that the commercial grading of dressed poultry is, to a large degree, subjective in nature. The grader, in visually classifying carcasses, introduces a personal concept or bias gained through years of experience and from associations with others engaged in this type of work.

With such attributes as broken or non-broken bones, bruises or no bruises, abrasions or no abrasions, pin feathers or no pin feathers, the standards are definite, leaving little opportunity for personal biases to enter the picture. Descriptive terms, as, for example, broad, long, full, plump, and deep, are not so well defined. They are relative terms and, therefore, a carcass is broad only in relation to a second carcass of lesser breadth.

Methods have been devised by research workers, notably Jaap and his associates at the Oklahoma Agricultural Experiment Station, which remove the personal element in grading either live or dressed poultry from the standpoint of fleshing qualities.

Body Weight—Shank Length Method

From the scientific point of view, the body weight-shank length relationship has much to command it since it is non-subjective. Commercially, however, there are certain limitations to this or any other similar approach, not the least of which is the time element. Secondly, it can be shown that mathematical formulae in some instances do not measure all the desirable qualities related to fleshing. This point is clearly indicated in the material presented inTable 1.

The lack of full agreement in the two methods of ranking is primarily due to differences in body conformation. Lines or figures can be drawn in such a way that what is true appears to the eye to be erroneous and vice versa.

The body of a roasting chicken possesses a true degree of fleshing (percentage flesh) that can be

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, December, 1940)

measured with a high degree of accuracy by mathematical formulae. At the same time, however, it may possess or lack certain attributes associated with shape, which, although not contributing to true fleshing definitely, augment or detract from true fleshing. Hence, two carcasses may possess identical degrees of fleshing, but one appears plumper by virtue of its superior body conformation.

Recognizing that relative terms, such as "full fleshed," well-covered, etc., cannot be avoided where poultry is graded visually, an attempt has been made to focus attention on a number of points which may be of assistance in more clearly defining "full fleshed."

The factors which influence fleshing (plumpness), real or merely apparent, as judged by the eye, can be conveniently grouped under three major headings:

1. Development of musculature.
2. Amount and distribution of fat.
3. Shape of body.

The breast of a full fleshed bird is semicircular in shape. As the breast becomes more angular, the impression of plumpness diminishes. The angular shape may be due to the lack of muscular development or to shape of body as, for instance, a deep keel, or both.

A breast is semicircular if the width of the breast in the region of the large feather tracts is 0.7 the width between the shoulders. In a 4.5 pound roaster these measurements are 2.3 and 3.3 inches respectively. It should be emphasized that these measurements are for males. The width of the breast in front of the thighs should be 0.7 of the width between the shoulders to be "full-fleshed."

The shape of the thigh muscles in a full fleshed or poorly fleshed bird is distinctly different. In the poorly fleshed individual, the lower thigh muscles taper uniformly as the hock joint is approached, while that of the full-fleshed bird appears to taper most rapidly in the region of the hock joint. There is a greater tendency for the upper thigh musculature of superior fleshed birds to increase in width as the hip joint is approached.

TABLE 1—Subjective and non-subjective grading of dressed roasters (male) on the basis of fleshing

Visual rank	Body weight (Lbs.)	Shank length (Inches)	Shank length body weight	Shank length body wgt. rank	Anterior body depth (Inches)	Keel length (Inches)	Max width of breast (Inches)
1	4.846	4.75	2.807	1	4.67	4.8	3.45
2	4.295	4.68	2.879	5-6	4.73	4.3	3.45
3	4.350	4.70	2.879	5-6	4.55	4.5	3.68
4	4.240	4.55	2.811	2	4.68	4.7	3.58
5	4.020	4.55	2.862	4	4.57	4.7	3.75
6	4.405	4.66	2.843	3	4.67	4.5	3.25
7	4.846	5.25	3.102	7	5.08	4.9	3.55
8	4.405	5.18	3.160	8	4.65	4.7	3.50
9	3.800	5.25	3.364	11	4.65	4.3	3.46
10	4.020	5.16	3.245	9	4.80	4.9	3.68
11	3.689	5.20	3.366	12	4.58	4.5	3.30
12	3.744	5.17	3.329	10	4.82	4.9	3.48

Amount and Distribution of Fat

The amount and distribution of fat profoundly influences fleshing. In poorly fleshed birds, visible fat is confined solely to the feather tracts. In full fleshed carcasses, fat is distributed between the feather tracts as well, giving the carcass a uniform surface color throughout.

The large dermal vein of the breast is sharply defined in poor carcasses while that of well-fleshed birds is obscured or surrounded by a layer of fat approximately one-half inch in width. Fat also tends to obscure bones which approach the surface of the body proper. Thus the bones of the hip joint, the pubic bones and the vertebrae crest are clearly defined in poorly fattened birds.

The general outline of the body proper, the position, length and direction of the keel bone and the depth of the body, although not necessarily influencing the percentage of flesh, do convey an impression of fleshing.

The more nearly the body outline conforms to a rectangle or a trapezoid, the greater is the impression of plumpness. It can be noted that back and breast bones are parallel. The keel bone of poorly-fleshed birds causes the outline to depart from that of a trapezoid, since it slopes toward the back.

The abdomen of full fleshed roasters is not filled out, as is the case with full fleshed fowls, but a keel bone which extends well beyond the knee joint will do much to create an impression of good fleshing.

The above points, subjective as they are, have been of material assistance in defining the term "full fleshing."

Food Stamp Plan and Surpluses

Today, the fight is to put our abundance to use, says Milo Perkins, administrator, Surplus Marketing Administration, and author of the Food Stamp Plan.

"For the first time in our history," declares Perkins, "there is enough to go round. Science has taken care of that. Our economy is suffering because we have too much of the things we need most. The trouble is, we haven't learned how to distribute what we've learned how to produce."

Commenting on surpluses, Perkins says, "The present war, however, has intensified surplus conditions with which the country has been dealing on various fronts through a comprehensive farm program. War has choked off a large part of an $800,000,000 annual export market, and has increased the need to find home outlets for our farm products. Because of world conditions over which we have no control, we find ourselves in a position where we must either use more of our surpluses in our own country or face a collapse of farm prices. It is socially desirable, of course, to feed America first, anyway."

Poultry raisers have a peculiar interest in the Food Stamp Plan because eggs have been on the list of surplus commodities since the plan's inception.

"The term 'surpluses,' as applied to dairy and poultry products, meats, and most of the fruits and vegetables," Perkins asserts, "is actually a smug, polite name for a shocking amount of underconsumption. More of these products should be produced on the lands now in export crops which can no longer be sold in an overseas market. A civilization that is commodity-rich but consumption-poor cannot survive. On the other hand, a civilization that has adequate producing capacity and the genius to use it will be impregnable. The Food Stamp Plan is only one of many ways to use our resources to the utmost."

New semi-rural areas in Illinois, Maine, Nebraska and Vermont have just been included in the Food Stamp Plan distributing program.

—Poultry Tribune, April, 1941.

Quality Speaks in Turkey Pools

Condensed from Kansas Farmer

CHANGES in the Kansas turkey industry are nearly as dramatic as the change from Texas Longhorns to modern beef cattle. In both instances, improved type and production practices have been followed by streamlined marketing methods.

Old time cattle trails served well enough for the rugged, grass-fattened steers that were driven to market. Likewise, selling all turkeys at the same price to a local buyer might have been the best possible way at one time. But just as blocky, short-legged cattle of today are suited to modern methods of transportation to market, the present day turkey calls for marketing systems that recognize quality.

Kansas Farmer, Eighth and Jackson Street, Topeka, Kansas
(Kansas Farmer, Jan. 11, 1941)

This explains the existence of thriving turkey pools, organized and managed by Kansas farmers and turkey raisers. The pools feature marketing of turkeys on a grade basis under the supervision of an approved government grader. Instead of all turkeys selling at the same price, growers with high-quality turkeys are paid the premium they deserve.

Turkey Quality is Better

It is an important item, because the average Kansas turkey of 1940 is a much better bird than the average "gobbler" of a few years ago. Following the lead of cattlemen, turkey growers are now producing shorter-legged, thicker-meated birds that are better suited for the American table. In addition to the rapidly increasing numbers of beef-type turkeys, there is definite improvement in quality of standardbred birds. Much of this has resulted from an intensive program of turkey improvement carried on by extension workers, breeders and farm flock owners.

With more Kansans selling high-quality turkeys each year, it is little wonder the pools have met with extreme popularity. This year, Thanksgiving and Christmas pools were held by six different co-operative associations, with headquarters at Anthony, Kinsley, Hutchinson, Page City, Beloit, and Sabetha.

At each of these locations, turkey growers operate for themselves what might be called a combined market center, packing house, and shipping center. The pools last from 3 to 5 days. During that time, hundreds of turkeys are dressed, graded, packed in cartons, and shipped. Each Kansas co-operative is a member of the statewide association which is known as the Mid-continent Turkey Marketing Association. This organization, in turn, is a member of a national co-operative, called the Northwestern Turkey Growers' Association, with headquarters at Salt Lake City. Glen C. Bidleman, Edwards county turkey breeder, represents Kansas as a director of the Northwestern association.

Through this nationwide organization, the turkey pools bring other advantages besides that of selling on a grade basis. Experienced market men, stationed at key points throughout the nation, direct the shipments in such a way that no market is flooded with an over-supply while another market is in need of more birds. Dressed and under refrigeration, turkeys may be held until the most opportune time of selling. Thus highest profits are realized.

All this results in high prices for each individual turkey grower who sells through pools, and it is a factor in strengthening the turkey market everywhere. All turkey growers in this extensive organization receive the same price for birds of the same grade. An advance payment is made at time of marketing, and the balance is paid later, similar to the plan used in operation of cooperative creameries throughout the state.

If you should happen in at one of the Kansas turkey pools during operation, you would find a busy scene. Probably the two largest pools of the state are the ones at Kinsley and Hutchinson, although all six are extremely active.

A visit to Anthony at the time of the Christmas pool there revealed about 70 persons at work. Farmers are assigned certain days to bring in their turkeys, so the arrivals are uniform and no turkeys have a long wait before being dressed. Upon entering the pool, each turkey is marked with a colored ribbon to denote ownership. This ribbon remains on the turkey's leg until it is dressed, graded and weighed, so the owner can be credited with his exact poundage of dressed turkeys for certain grades.

Birds Picked and Graded

Foremost among the jobs is that of picking. At Anthony, more than 40 persons are employed for this job. Pickers receive 7 cents a turkey, and the average helper can pick 4 or 5 birds an hour. Picked birds are inspected by checkers who make sure the job is well done. Dressed turkeys move on to the grading room, where an approved grader classes them in one of three government grades. Top grade is U. S. Prime, followed by U. S. Choice and U. S. Commercial.

Immediately after grading, the dressed birds are weighed. Then, just as soon as weights and grades are recorded for respective owners, the birds lose their identity so far as local ownership is concerned. U. S. Primes are packed with U. S. Primes from the flocks of other owners—they are sold together, and net profits are returned on the basis of pounds marketed. The same system is used for birds grading U. S. Choice and U. S. Gommercial.

Special Brand Name

After a period in the cooler, dressed birds are packed in special boxes bearing the brand, "Norbest Turkeys." This brand is used by cooperative pools throughout the nation who market through the Northwestern Turkey Growers' Association. Norbest Turkeys have an enviable reputation with firms handling large quantities of dressed birds.

In specially prepared boxes, the Kansas turkeys are packed uniformly, in the same manner as Norbest Turkeys from other areas. Boxes are designed for fullest utilization of space, to be shipped by rail or truck. Most of the dressed birds from Kansas turkey pools are shipped directly to central dressed-poultry markets, although, in a few instances, pools have sold direct to large retailing firms.

Last year 750,000 pounds of dressed turkeys were shipped from the six Kansas pools. This year the figure was expected to be more than a million pounds. The average dressed weight of Kansas turkeys is about 14 pounds. Since 1936, when the first dressed turkey pools in Kansas were held, there has been a rapid increase in the percentage of high-grading birds.

Thanksgiving pools in 1936 ended with only 25.5 per cent of all turkeys grading prime, while 48.3 per cent graded prime in the Christmas pools that year. In contrast with this are figures from last year which show that 61 per cent of the turkeys graded prime in Thanksgiving pools while 70 per cent were prime in Christmas pools. By watching their own turkeys as they are dressed, graded, and weighed, Kansas poultrymen are learning what kind of turkey is required to grade high and bring a premium price.

Handling Broody Turkey Hens

The turkey hen with pronounced maternal yearnings is like the dry dairy cow – a boarder. While more or less breeding work is being done to eliminate broodiness from turkeys, this has not progressed far enough to be anything like general, and the broody hen problem is one confronting every egg producer at this time of the year.

Much of the success of any system of handling broodies depends on the arrangement of the yards. On some of the better egg ranches, the owners have their yards arranged to cut down the handling of the hens to a minimum and, by so doing, one of the most disagreeable tasks on the ranch is greatly lightened.

There is one cardinal rule for handling broodies—never let a hen stay on the nest over night. In other words, the producer with a laying flock has a nightly task in handling broody hens.

Perhaps the simplest plan is to have four separate broody yards. Where many hens are being run, the easiest way is to go around the nests at night with a wagon or cart, hauling a coop. Put the broodies in this coop and take them to one of the broody yards. This yard should be reasonably large, so the birds can get plenty of range and green feed, and should be equipped with a nest or two. A vigorous tom or two, depending on the daily gather of broodies, should be in each yard. Some of the hens will break up by simply changing yards, and will not be out of production more than a day or two. On the fourth day, put the broodies back in the flock. By having four separate yards, it is not necessary to catch the hens again; they can be driven back to their original yard.

With the nest in the broodie yard, a certain percentage of the hens will still want to set. There are two ways of handling these, one is to put them on wire or slats, where they cannot set, and where the air circulates on their breasts even when they are sitting down. The other is to put these hens in the pen with the spare toms. The former is perhaps the better way.

Strict attention to broodies pays big dividends, for it must always be kept in mind that the hen that is not producing at this season is losing the producer money.

—Norbest Turkey News, March, 1941.

Turkey on a Stick

In most every turkey production center, growers recognize the importance of finding new means of marketing turkeys and turkey meat.

In the Upper San Joaquin is the S. B. Kerner Turkey Ranch. Mrs. Kerner has an interest in a restaurant in Fresno, one of the city's leading eating places. Mention is made of this because it has given Mrs. Kerner an opportunity to experiment with serving of turkey in different forms.

One of the most popular foods she has devised is designated on menus as "Turkey on the Stick." She is seeking to copyright this name.

Juicy bits of turkey meat are spitted – that is, prepared en brochete—and then either broiled or fried in deep fat. Two methods are used—one to dip the "Turkey on the Stick" into a batter before cooking; the other to cook it quickly without batter.

—Turkey Talk, February, 1941.

A RECENT invention for poultry raisers is an egg-carrying belt for the layer-cage house. The belt is in motion perpetually, and as the eggs are laid they are carried to a felt-lined box which stands at the end of each tier. According to the report in Eggs, London, England, the new invention sounds good but spoils the best job in the battery house—collecting.

THE FARMER'S share of the consumer's dollar spent for 58 foods averaged 42 cents in 1940, compared with 41 cents in 1939 and 40 cents in 1938, according to the Bureau of Agricultural Economics. The farmer's cut on the consumer's dollar was 53 cents in 1913. In 1917 it was 60 cents; in 1921, 44 cents. By 1932 it was but 33 cents.

POULTRY STATISTICS

Hens on Farms—Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Feb. 1	Mar. 1	Feb. 1	Mar. 1	Aggregate Jan.-Mar.	Feb. 1	Mar. 1	Aggregate Jan.-Mar.
North Atl.									
1930-39 (Av.)	97.5	95.4	93.5	34.0	42.8	104	32.3	40.1	99
1940	97.2	94.8	92.9	35.2	47.4	117	33.3	43.9	110
1941	95.4	94.5	89.8	41.2	48.5	127	38.9	43.5	118
E. N. Cent.									
1930-39 (Av.)	108.8	107.8	104.5	27.6	38.1	86	29.9	40.0	92
1940	110.8	109.3	106.6	25.8	40.9	95	28.6	43.9	104
1941	110.3	108.5	103.3	35.7	42.5	108	39.0	44.0	117
W. N. Cent.									
1930-39 (Av.)	117.6	117.2	112.9	22.0	34.2	71	26.0	39.1	83
1940	118.6	116.9	118.1	18.9	35.7	78	22.3	42.5	92
1941	116.1	114.7	115.1	29.9	40.4	92	34.6	46.5	107
South Atl.									
1930-39 (Av.)	58.6	57.4	55.9	29.6	42.7	94	17.2	23.9	54
1940	59.9	58.8	58.7	25.3	44.7	98	14.6	26.2	58
1941	59.4	58.0	56.0	34.4	45.5	109	19.9	25.4	62
South Cent.									
1930-39 (Av.)	64.4	63.9	61.7	26.6	42.1	87	17.0	26.0	55
1940	65.8	64.0	62.9	18.8	39.5	81	12.1	24.7	52
1941	62.7	61.8	60.2	33.4	45.5	102	20.8	27.3	62
Western									
1930-39 (Av.)	73.2	72.6	70.7	31.1	44.9	100	21.9	30.8	70
1940	73.7	71.6	69.7	32.1	48.0	110	21.6	32.3	76
1941	71.6	69.1	67.5	36.0	49.1	113	24.5	32.5	76
United States									
1930-39 (Av.)	84.0	83.2	80.6	26.8	39.2	85	22.4	31.8	70
1940	85.1	83.5	82.6	23.9	40.7	91	19.4	33.4	75
1941	83.2	81.9	79.7	33.9	43.9	104	27.9	34.9	85

Continued favorable weather with liberal feeding during February brought about a record high February egg production of 3,281,000,000 eggs despite a 3 per cent reduction in the number of layers from last year and 2 per cent from the 10-year average. The February output was 12 per cent larger than the small layings in February 1940, 14 per cent larger than the 10-year (1930-39) average, and exceeded the previous high production in February 1931 by 3 per cent. February egg production reached a record high level in the East North Central States and exceeded the 10-year average in all areas except the West, where it decreased 5 per cent.

The rate of egg production per layer during February more than maintained the high seasonal levels of recent years, and reached an all time high of 10.33 eggs. This compared with 9.00 eggs a year ago and with the 10-year February average of 8.86 eggs. The rate reached new highs for the month in the East North Central, West North Central, and South Central States, and exceeded the 10-year average by from 5 to 24 per cent in all sections of the country.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Receipts of dressed poultry at four eastern markets in February were 14 per cent below a year earlier, and March is showing about the same relationship. The market is generally firm. U. S. stocks of frozen poultry on March 1 were 18 million pounds greater than a year earlier, totaling 163 million pounds, compared with 145 million pounds on March 1, 1940, and a 1936-40 average of 121 million. In the 35 cities alone, the excess on March 1 over the previous year was 11 million pounds. There has been a steady reduction of stocks in these markets since March 1, which up to March 22 was close to 20 per cent, and the excess over last year has also been reduced somewhat.

The egg supply situation has been changing rapidly during the past month. Receipts at terminal markets in February were 11 per cent greater than in 1940, despite the shorter month this year. February production established a new record high for the month, favorable weather and liberal feeding accounting for the heavy egg output as there are fewer layers on hand. Receipts of eggs at country packing plants in the Central Western States showed unusually large percentage increases each week throughout February, and averaged well over 100 per cent above the receipts of February last year. In March, however, the situation changed somewhat, in that the seasonal increases became smaller, as did also the increases over last year. Unfavorable weather was probably responsible in part for the drop in packing plant receipts toward the middle of March, and there was a remarkable pick-up immediately thereafter, receipts for the week ending March 22 being the heaviest for any week since the early part of last summer.

Egg breaking operations have begun to assume rather large proportions, the February output being estimated at 10½ million pounds, an increase of more than 500 per cent over a year earlier. Terminal market receipts of shell eggs in March reflected current production changes, although they were 15 to 20 per cent lighter than during March of last year, and the seasonal increases have not reached the volume of last year. Four markets' receipts during the calendar week ending March 22 were 325,000 cases, an increase of 27,000 cases over receipts during the first week of the month. A comparison of the same corresponding calendar week of 1940 shows an increase of 96,000 cases. For the calendar year to date, arrivals at terminal markets are now slightly less than in 1940. At the end of February they were 11 per cent heavier.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic section	February 1941	February 1940	% change	Jan. to Feb., Inc. 1941	Jan. to Feb., Inc. 1940	% change
New England	49,580	44,257	+12.0	113,606	99,082	+14.7
Middle Atlantic	202,876	162,870	+24.6	438,895	337,003	+30.2
South Atlantic	16,745	17,752	– 5.7	31,938	31,340	+ 1.9
East North Central	204,462	188,621	+ 8.4	425,779	387,938	+ 9.8
West North Central	530,458	412,780	+28.5	938,651	747,164	+25.6
South Central	5,459	17,476	–68.8	7,074	17,984	–60.7
Mountain	22,899	31,922	–28.3	42,385	67,697	–37.4
Pacific	7,571	62,977	–88.0	22,595	129,005	–82.5
Miscellaneous	394	322	+22.4	802	619	+29.6
TOTAL	1,040,444	938,977	+10.8	2,021,725	1,817,832	+11.2

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic section	February 1941	February 1940	% change	Jan. to Feb., Inc. 1941	Jan. to Feb., Inc. 1940	% change
New England	232,875	323,406	–28.0	516,416	965,315	–46.5
Middle Atlantic	1,487,375	1,267,915	+17.3	3,279,941	2,529,061	+29.7
South Atlantic	2,231,507	2,054,200	+ 8.6	4,735,789	4,157,320	+13.9
East North Central	2,377,109	2,858,432	–16.8	5,211,643	5,682,120	– 8.3
West North Central	8,634,906	11,106,108	–22.3	23,094,703	29,569,034	–21.9
South Central	1,649,471	1,442,097	+14.4	3,171,635	3,059,179	+ 3.7
Mountain	451,575	662,322	–31.8	2,060,757	2,239,653	– 8.0
Pacific	1,444,137	1,886,061	–23.4	3,201,455	5,217,619	–38.6
Miscellaneous	0	0	–	0	0	–
TOTAL	18,508,955	21,600,541	–14.3	45,272,339	53,419,301	–15.4

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs			Pounds of Poultry (000 omitted)			Pounds of Young Stock (000 omitted)			Pounds of Fowl (000 omitted)		
	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.
Mar. 1	149,253	85,051	+75.49	1,393	1,627	–14.36	Discontinued until 1941 Hatchings Are Available in Larger Volume			1,212	1,383	–12.33
Mar. 8	164,345	118,794	+38.34	1,548	2,143	–27.75				1,345	1,870	–28.07
Mar. 15	164,391	163,679	+ 0.43	1,566	2,126	–26.30				1,323	1,894	–30.13
Mar. 22	222,794	197,266	+12.94	1,575	2,249	–29.99				1,328	1,965	–32.41
Mar. 29	231,679	182,082	+27.24	1,617	1,812	–10.73				1,376	1,602	–14.09

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
March 1	60	63,773	72,994	+1.42	–12.63
March 8	61	66,610	80,968	+3.66	–17.73
March 15	60	66,274	79,729	+0.27	–16.88
March 22	60	68,231	81,377	+2.95	–16.15
March 29	61	69,534	80,624	+1.01	–13.76

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
March 1	31	39,656	+0.12	+ 2.08
March 8	26	30,882	−0.35	+ 2.45
March 15	28	35,678	−0.89	− 1.65
March 22	31	36,664	+2.64	+ 4.58
March 29	25	32,589	+2.48	+15.65

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. Dollars		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
March 6	10.1	9.9	8.5	.189	.194	.196	1.90	1.92	1.67
March 13	10.1	10.0	8.3	.192	.191	.201	1.93	1.91	1.66
March 20	9.4	10.0	8.3	.209	.192	.203	1.97	1.92	1.68
March 27	8.9	10.0	8.8	.225	.192	.191	2.00	1.92	1.68

—Compiled by N. Y. State Dept. of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Egg to Buy 100 lbs. of Laying Ration		10-Yr. Avg.	Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	1931-40	1941	1940	1941	1940
March 1	7.38	6.98	6.41	.163	.180	1.209	1.257
March 8	7.36	7.56	6.44	.165	.165	1.214	1.248
March 15	7.26	7.37	6.45	.170	.166	1.241	1.225
March 22	6.82	7.51	6.53	.185	.164	1.262	1.236
March 29	6.57	7.59	6.72	.196	.165	1.292	1.253

—Compiled from U. S. D. A. market reports.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
February	8.00	9.60	7.55	9.05	10.20	7.49
January-February	7.02	9.47	6.94	8.00	8.96	6.98
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

March egg markets continued to have the support of Government buying, the Agricultural Marketing Service reports. The volume of purchases during the month was only about half of what was bought in February. Prices at the principal terminal markets have advanced 3 to 4 cents. Receipts at terminal markets are increasing seasonally, and seasonal into-storage movements of eggs are under way.

Wholesale prices of eggs advanced in all markets during March. The extent of the advances vary somewhat, but average fully 4 cents. Best quality nearby eggs increased slightly more than this at New York. March averages are generally ½ to 1 cent above last year in Eastern markets, and about 2 cents higher on the Pacific Coast.

Government purchases of eggs in March approximated 73,000 cases, with about 80 per cent of the buying by the Federal Surplus Commodities Corporation. All but a very small portion of the eggs bought by this agency were secured under the plan of direct offerings, most of the purchases being made in the Middle Western States. Less than a thousand cases were bought through the Exchange method, and this was confined to New York. The Surplus Marketing Administration bought on both the New York and Chicago Mercantile Exchanges, purchases totaling about 13,500 cases with practically all buying at Chicago. The first announcement of the Federal Surplus Commodities Corporation that offers would be considered only from certain States was later modified to include all of the continental United States, and the former provision that offerings could be of any quantity was amended by limiting offerings to carlots only. This announcement applies to the period through June 30.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Mar. 1	Mar. 8	Mar. 15	Mar. 22	Mar. 29	Mar. 29, '40
Mixed Color Firsts	17¾	17¾-18	18¾	20	21½	17½
Nearby and Midwestern White Premium Marks	19¾-21¼	20-21½	21-22½	23-24½	25-26½	20½-22
Nearby and Midwestern White Exchange Specials	19¼	19½	20¼-20½	22¼-22½	24½	20
Pacific Coast Specials	24½-25	24½-25	25-25½	26½-27	28-28½	23½-25½
Nearby and Midwestern Brown Specials	19¼	19½	19¾-20	20¾	23	20

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8										

Eggs in Storage

The low point of the past season's storage stocks of eggs was reached about the middle of February. Since the first of March, when total U. S. stocks were 298,000 cases, there has been an into-storage movement. Holdings in the 35 cities on March 22 were 487,000 cases, compared with 374,000 cases a year earlier, and a five-year average of 490,000 cases. The March increases this year and last are of about the same volume, although on a percentage basis, the current year's rate of increase is much slower. Total U. S. stocks of eggs in storage on April 1 last year were 854,000 cases, and the five-year average for the same date is 1,096,000 cases. The 35 cities' report furnishes some indication of what this year's total April 1 stocks will be.

Storage stocks of frozen eggs on March 1 were 45 million pounds, compared with 38 million pounds a year previous and a 1936-40 average for the same date of 50½ million pounds. The low point of the season has been reached, and reports of recent weeks have shown increases. Comparisons with a year earlier show that stocks in the 35 cities are now in greater excess over last year than on March 1.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	5-Year Avg. Mar. 1 1939-40	Mar. 1 1940	Feb. 1 1941	Mar. 1 1941	% Change Mar. '40-Mar. '41
		(Thousands)			
Shell Eggs (cases)	172	81	297	298**	+267.9
Frozen Eggs (lbs.)	50,411	38,070	53,828	45,120	+ 18.5
Frozen Case Equivalent (cases)*	1,440	1,088	1,538	1,289	+ 18.5
Total (cases)	1,612	1,169	1,835	1,587	+ 35.7

* Frozen eggs are converted on the basis of 35 pounds to the case.

** Includes 15,963 cases owned by the Surplus Marketing Administration for relief distribution.

Poultry Meat Prices

Mid-Month Farm Prices of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0										

The live poultry market continues steady to firm. A strong position on dressed poultry has supported the live market. Receipts are relatively light, both at Central West packing plants and at terminal markets. Prices have advanced slightly on practically all classes, and average about 2 cents above a year ago. The increase in turkey prices is greater than this.

Poultry in Storage

Storage Holdings of Poultry

Kind	5-Year Avg. Mar. 1 1936-40	Mar. 1 1940	Feb. 1 1941	Mar. 1 1941	% Change Mar. '40-Mar. '41
		(Thousand Pounds)			
Broilers	10,710	7,795	9,744	7,642	− 2.0
Fryers	10,577	6,688	12,867	10,791	+61.3
Roasters	24,759	21,307	31,605	28,916	+35.7
Fowls	19,373	20,334	35,157	28,998	+42.6
Turkeys	34,439	63,811	65,343	59,188	− 7.5
Ducks	2,404	2,631	5,828	3,664	+39.2
Miscellaneous	18,763	14,140	17,459	14,594	+ 3.2
Unclassified		8,053	13,407	9,554	+18.6
Total	121,025	144,759	191,410	163,347	+12.7

Hatchery Operations

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Feb. 1938	Feb. 1939	Feb. 1940	Feb. 1941	% chg. from Feb.1940	Jan.-Feb. Inc. 1940	Jan.-Feb. Inc. 1941	% chg. from 1940
			Thousands					
New England	5,854	6,354	5,778	8,089	+ 40	9,711	15,640	+61
Middle Atlantic	8,928	10,885	7,699	10,317	+ 34	10,468	14,277	+36
South Atlantic	6,262	8,483	6,017	11,011	+ 83	10,998	17,935	+63
E. N. Central	14,395	15,063	9,374	18,467	+ 97	14,766	25,584	+73
W. N. Central	11,974	15,674	8,133	14,558	+ 79	12,443	21,023	+69
South Central	13,716	16,214	7,811	15,700	+101	12,920	22,035	+71
Mountain	1,541	2,156	1,383	1,992	+ 44	1,697	2,303	+36
Pacific	7,503	9,628	6,666	8,066	+ 21	9,872	12,651	+28
U. S.	70,173	84,457	52,861	88,200	+ 67	82,875	131,448	+59

Eggs Set by Commercial Hatcheries

Geographic Divisions	Feb. 1938	Feb. 1939	Feb. 1940	Feb. 1941	% chg. from Feb.1940	Jan.-Feb. Inc. 1940	Jan.-Feb. Inc. 1941	% chg. from 1940
			Thousands					
New England	9,017	10,208	10,717	11,789	+10	16,819	22,345	+33
Middle Atlantic	18,375	19,904	21,145	22,625	+ 7	28,522	32,289	+13
South Atlantic	12,012	14,474	12,913	19,240	+49	18,969	27,961	+47
E. N. Central	36,561	39,781	37,568	46,960	+25	46,695	64,757	+39
W. N. Central	37,773	43,670	37,527	48,410	+29	44,336	63,117	+42
South Central	23,567	27,016	20,087	27,318	+36	30,959	43,409	+40
Mountain	3,674	4,458	3,976	4,215	+ 6	5,365	6,840	+27
Pacific	15,669	17,639	14,109	15,943	+13	20,889	24,689	+18
U. S.	156,648	177,150	158,042	196,500	+24	212,554	285,407	+34

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Mar.	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Mar. 1, 1940	February 1940	February 1941	February 1940	February 1941	% change from February 1940
New England	+74	8	5	92	95	+ 24
Middle Atlantic	+26	39	32	61	68	+ 37
South Atlantic	+69	10	8	90	92	+900
E. N. Central	+20	23	17	77	83	+133
W. N. Central	+25	25	27	75	73	+188
So. Central	+62	27	25	73	75	+ 52
Mountain	+15	40	45	60	55	+ 27
Pacific	+ 7	81	78	19	22	+ 28
U. S.	+27	36	29	64	71	+ 58

The production of baby chicks by commercial hatcheries in February set a new high record for the month, the Agricultural Marketing Service reports. A favorable hatching month, abundant supplies of eggs, and a strong demand for chicks resulted in an estimated output of 88,200,000 chicks or 67 per cent more than production in February last year and 4 per cent above the previous high record production of February 1939. The number of eggs set in February was 24 per cent larger than the number set in February last year and the number of chicks booked on March 1 was 27 per cent larger.

The production of hatchery chicks for the first two months of the year shows an increase of 59 per cent over the same period last year. Ordinarily, the output of chicks during January and February averages slightly over 10 per cent of the total for the year, but in view of the large production in these months this year, the proportion will probably be larger than usual.

Not many surplus chicks have been reported. The demand has been good and the immediate outlook continues favorable for hatcheries. The strong demand for chicks for broilers is expected to continue as long as prices for young chickens remain at present levels. The number of chicks produced for broilers during January and February appears to have been the largest on record. Egg prices have strengthened during the past several weeks and the egg situation has improved considerably. The consumption of poultry is heavy and prices are firm. Regardless of economic factors, however, a large hatch in March can be expected in view of the 24 per cent increase in eggs set over February of last year. The South Atlantic States and the South Central States reported increases of 46 and 36 per cent in eggs set, and this reflects the strong demand for chicks from commercial broiler producers. Orders reported by hatcheries on March 1 were 27 per cent larger than on the same date last year with all sections of the country reporting increases.

The reports on hatchings of turkey poults indicate that the season has been slow in getting started. Sixty-one plants reported hatching 40 per cent fewer poults than in February last year. The number of eggs set in February, however, was only 9 per cent less and the number of poults booked March 1 for later delivery only 3 per cent less. Regarding the turkey outlook, 6,000 growers reported to the Agricultural Marketing Service that they planned to hatch the same number of poults as last year but planned to buy 5 per cent fewer than last year, thus continuing the tendency to hatch more on the farm. For the country as a whole, the intentions report indicated a 3 per cent decrease in the number of turkeys to be raised this year compared with last year.

—Comment from U. S. D. A. Hatchery Report.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		February 1941	February 1940	Jan. to Feb., Inc. 1941	Jan. to Feb., Inc. 1940
Eggs in shell	(doz.)	292,797	211,734	620,146	495,439
Eggs Products, Frozen, dried, etc.	(lbs.)	17,514	21,461	52,036	29,015
Live Poultry	(lbs.)	6,692	11,697	11,189	19,614
Dressed Poultry	(lbs.)	191,968	88,941	349,060	216,327

Imports of Eggs and Poultry

Commodity		February 1941	February 1940	Jan. to Feb., Inc. 1941	Jan. to Feb., Inc. 1940
Eggs in shell	(doz.)	14,388	16,751	34,434	33,122
Whole Eggs, dried	(lbs.)	0	9,500	0	14,500
Whole Eggs, frozen	(lbs.)	89	0	89	167
Yolks, dried	(lbs.)	139,412	174,864	333,012	227,664
Yolks, frozen	(lbs.)	0	0	420	0
Egg Albumen, dried	(lbs.)	7,494	20,600	33,492	58,200
Egg Albumen, frozen	(lbs.)	0	0	0	0
Live Poultry	(lbs.)	96,527	63,866	207,714	101,202
Dressed Poultry	(lbs.)	8,685	17,932	21,724	30,186
Poultry, prepared	(lbs.)	56,198	65,125	126,363	123,400

ANOTHER poultry raising hazard is brought to light by Stella M. Costigan in the Journal of the American Veterinary Medical Association. A Philadelphia, Pa., farmer noticed his guineas limping, and thought they showed symptoms of leg weakness or paralysis. Some died. Upon examination it was found that the birds had picked up shot and were suffering from lead poisoning. The original owner of the guinea fowl killed rats with a shotgun.

Electric Fence for Foxes

The electric fence, which has proved very effective in turning cattle, has, by most people, been considered impractical as a means of protecting poultry from foxes. Byron Tefft, of Thompsonville, Conn., had a different point of view and constructed an electric fence which has proved practical and effective in keeping foxes away from his chick range. In his experience, the foxes dug under the fence rather than jumping over the fence. Therefore, he located the electric wire where it would make a contact with the fox when he started to dig. The electric wire is located approximately a foot from the ground and approximately a foot outside of the poultry fence. The wire runs around the entire outside of the poultry fence in the area from which foxes would be apt to approach.

The construction of the electric fence is exactly the same as the electric fences used for cattle. The construction has to be done more carefully, perhaps, in order to obtain the proper location of the wire relative to the ground and the poultry fence. Such a fence has to be well insulated and the weeds, brush and grass must be cut several times during the season to prevent any possibility of a short circuit on the line.

The value of the electric fence in turning foxes was shown by the fact that the losses due to foxes stopped. Places were found along the fence line where Mr. Fox had started to dig, but when his back struck the electric fencing he had business elsewhere.

—Roy E. Jones, New England Homestead, March 22, 1941.

A Hen-Tool Cabinet

F. R. Schindler of Canoga Park, Calif., has a good solution to the problem of a place to keep tools. He built a tool "house" on the end of the first poultry house on his work alley. The tool cabinet is about 4 feet wide, 18 inches deep and 6½ feet high. It is large enough for holding all the shovels, scrapers, rakes and other tools needed in work about a poultry farm. Several small shelves are provided for small articles. This inexpensive tool cabinet keeps tools out of the sun and rain, keeps handles from becoming weather-beaten and metal parts from rusting. The cabinet is located in the right place, so it is convenient to pick up or leave tools, lends itself to orderliness — a place for every tool and every tool in its place. Doors can be padlocked at night.

—Pacific Rural Press, Feb. 8, 1941.

RESULTS OF LAYING TESTS

By leading all other pens in the country on March 1, J. A. Hanson's White Leghorns at Storrs duplicate their feat of a year ago, and besides this they have to their credit some 54 more eggs and 87 more points than the Hanson pen had a year ago. However, they are being pushed hard by T. N. Wilcox's pen of Barred Rocks at Georgia, which are only a fraction more than 10 points behind the leaders.

E. B. Parmenter's pen of Rhode Island Reds at Maine tops all other pens in their breed and rates a strong third place among all standard pens.

Highest entry in the New Hampshire breed is Colonial Poultry Farms' team at Texas.

Albert C. Lawton's White Rocks at Storrs are at the head of all pens in that division.

Blue ribbon individual through the five months thus far is Colonial Poultry Farms' New Hampshire hen at Texas, which has earned 149 eggs and 163.5 points in the 151 days.

Hanson's Leghorns at Storrs produced 333 eggs and earned 363.5 points during February, surpassing the records made by all other pens during the month. Hens at six different tests shared honors for heaviest individual producers during February.

The average for all 15,704 birds started in the 18 standard tests on October 1 is 84.88 eggs and 85.38 points per bird after five months of laying. Mortality is 6.58 per cent for all tests. Average egg weight is 24.1 ounces per dozen.

Twenty Highest Pens, All Breeds, to March 1—(151 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1767	1855.25	Storrs
T. N. Wilcox	Barred Rock	1760	1844.95	Georgia
E. B. Parmenter	Rhode Island Red	1703	1814.25	Maine
J. J. Warren	Rhode Island Red	1646	1745.20	Long Island
H. J. Hardin	Rhode Island Red	1695	1741.15	Georgia
G. B. Treadwell	Rhode Island Red	1652	1721.45	Maine
L. D. Bartholomew	Rhode Island Red	1619	1715.70	Storrs
E. B. Parmenter	Rhode Island Red	1646	1709.75	Long Island
Rapp's Poultry Farm	White Leghorn	1654	1707.65	Hunterdon, N. J.
W. H. Wilson	Rhode Island Red	1714	1700.45	Georgia
J. J. Warren	Rhode Island Red	1608	1694.45	Texas
Missouri Valley Hatchery	Rhode Island Red	1559	1694.15	Missouri
Colonial Poultry Farms	New Hampshire	1594	1680.10	Texas
J. J. Warren	Rhode Island Red	1552	1669.05	Maine
E. B. Parmenter	Rhode Island Red	1600	1663.30	Passaic, N. J.
Booth Farms and Hatchery	White Leghorn	1613	1661.75	Georgia
Kauder's Pedigreed Leghorns	White Leghorn	1645	1660.55	Texas
J. A. Hanson	White Leghorn	1591	1657.50	Rhode Island
J. A. Hanson	White Leghorn	1595	1646.75	Storrs
J. J. Warren	Rhode Island Red	1590	1645.90	Florida

High Pen in Each Standard Test to March 1—(151 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1767	1855.25	Storrs
T. N. Wilcox	Barred Rock	1760	1844.95	Georgia
E. B. Parmenter	Rhode Island Red	1703	1814.25	Maine
J. J. Warren	Rhode Island Red	1646	1745.20	Long Island
Rapp's Poultry Farm	White Leghorn	1654	1707.65	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	1608	1694.45	Texas
Missouri Valley Hatchery	Rhode Island Red	1559	1694.15	Missouri
E. B. Parmenter	Rhode Island Red	1600	1663.30	Passaic, N. J.
J. A. Hanson	White Leghorn	1591	1657.50	Rhode Island
J. J. Warren	Rhode Island Red	1590	1645.90	Florida
E. B. Parmenter	Rhode Island Red	1608	1622.45	Paterson, N. J.
Crooks Farm	Rhode Island Red	1532	1598.25	Pennsylania
E. B. Parmenter	Rhode Island Red	1518	1585.95	California
J. J. Warren	Rhode Island Red	1522	1559.45	Western New York
Missouri Valley Hatchery	Rhode Island Red	1475	1513.05	Oklahoma
W. G. Ashby	New Hampshire	1429	1479.30	Arizona
Bodine's Pedigreed Leghorns	White Leghorn	1517	1470.25	Central New York
J. J. Warren	Rhode Island Red	1388	1449.70	Michigan

High Pen in Each Standard Test for February

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	333	363.50	Storrs
T. N. Wilcox	Barred Rock	327	355.70	Georgia
E. B. Parmenter	Rhode Island Red	316	343.45	Rhode Island
E. B. Parmenter	Rhode Island Red	312	336.75	Maine
Lucas Poultry Farm	New Hampshire	310	334.80	Missouri
J. J. Warren	Rhode Island Red	311	333.40	Texas
J. J. Warren	Rhode Island Red	306	329.55	Long Island
J. W. Schaible	Barred Rock	310	328.15	Hunterdon, N. J.
Crooks Farm	Rhode Island Red	304	326.90	Pennsylvania
Crooks Farm	Rhode Island Red	304	326.45	Florida
Fox Poultry Farm	Rhode Island Red	296	323.55	Passaic, N. J.
C. E. George	White Leghorn	302	320.40	Arizona
Dryden Poultry Breed. Farm	Barred Rock	299	315.15	California
W. B. Coles	White Leghorn	277	300.85	Paterson, N. J.
R. C. E. Wallace	Barred Rock	285	298.50	Oklahoma
C. T. Avery & Son	Rhode Island Red	273	289.85	Western New York
J. J. Warren	Rhode Island Red	265	287.00	Michigan
R. C. E. Wallace	Barred Rock	253	269.20	Central New York

High Pen in Each Breed to March 1—(151 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	1767	1855.25	Storrs
T. N. Wilcox	Barred Rock	1760	1844.95	Georgia
E. B. Parmenter	S. C. Rhode Island Red	1703	1814.25	Maine
Colonial Poultry Farms	New Hampshire	1594	1680.10	Texas
Albert C. Lawton	White Rock	1462	1422.75	Storrs
R. S. Thomas	Ancona	1345	1299.95	Pennsylvania
Harvey E. Taylor	White Wyandotte	1340	1282.95	Texas
Paul Hansen	Black Australorp	1221	1217.80	California
E. J. Covey	Black Minorca	1007	1037.70	Texas
Iowa Master Breeders	R. C. Rhode Island Red	1067	1006.75	Texas
Lindstrom Poultry Farm	Buff Minorca	1069	992.75	Texas
Superior Hatchery	Light Brahma	900	947.70	Georgia
Illinois Hatchery	Brown Leghorn	923	935.80	Texas
S. E. Raymond	Lamona	886	927.15	Storrs
Howard C. Jones	Buff Orpington	914	916.60	Florida
Raymond Murphy	White Giant	842	889.95	Missouri
Ward's Poultry Farm	Buff Leghorn	768	738.25	Oklahoma
Colonial Poultry Farms	White Minorca	649	699.30	Missouri

High Hen in Each Breed to March 1—(151 Days)

Owner	Breed	Eggs	Points	Test
Colonial Poultry Farms	New Hampshire	149	163.50	Texas
W. A. Seidel	White Leghorn	149	163.15	Texas
E. B. Parmenter	S. C. Rhode Island Red	149	158.40	Storrs
T. N. Wilcox	Barred Rock	143	154.30	Georgia
Lindstrom Poultry Farm	White Rock	142	148.30	Georgia
Harvey E. Taylor	White Wyandotte	126	133.10	Texas
Iowa Master Breeders	R. C. Rhode Island Red	120	128.90	Texas
Paul Hansen	Black Australorp	120	126.75	California
S. E. Raymond	Lamona	120	123.40	Storrs
Howard C. Jones	Buff Orpington	116	121.75	Florida
Raymond Murphy	White Giant	108	117.70	Missouri
Superior Hatchery	Light Brahma	114	115.45	Texas
R. S. Thomas	Ancona	113	113.60	Pennsylvania
E. J. Covey	Black Minorca	108	112.40	Texas
Lindstrom Poultry Farm	Buff Minorca	101	105.90	Texas
Illinois Hatchery	Brown Leghorn	111	103.65	Texas
Colonial Poultry Farms	White Minorca	92	98.75	Missouri
Ward's Poultry Farm	Buff Leghorn	83	80.35	Oklahoma

High Hen in Each Standard Test to March 1—(151 Days)

Owner	Breed	Eggs	Points	Test
Colonial Poultry Farms	New Hampshire	149	163.50	Texas
E. B. Parmenter	Rhode Island Red	149	158.40	Storrs
E. B. Parmenter	Rhode Island Red	146	158.40	Rhode Island
Rapp's Poultry Farm	White Leghorn	144	157.80	Hunterdon, N. J.
Missouri Valley Hatchery	Rhode Island Red	143	156.70	Missouri
Foreman Poultry Farm	White Leghorn	146	156.35	Georgia
E. B. Parmenter	Rhode Island Red	145	152.20	Pennsylvania
Eugley's Poultry Plant	Rhode Island Red	144	151.80	Maine
Foreman Poultry Farm	White Leghorn	141	151.50	Passaic, N. J.
J. J. Warren	Rhode Island Red	137	150.25	Florida
E. B. Parmenter	Rhode Island Red	138	149.90	Long Island
J. J. Warren	Rhode Island Red	138	148.50	Oklahoma
E. B. Parmenter	Rhode Island Red	139	147.95	Paterson, N. J.
J. J. Warren	Rhode Island Red	143	147.85	Western New York
David T. Cohen	Barred Rock	134	146.65	Arizona
J. A. Hanson	White Leghorn	132	142.65	California
Fred Schempf	White Leghorn	130	140.00	Central New York
Foreman Poultry Farm	White Leghorn	136	136.85	Michigan

High Hen in Each Standard Test for February

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	28	30.80	Storrs
E. B. Parmenter	Rhode Island Red	28	30.80	Rhode Island
Crooks Farm	Rhode Island Red	28	30.80	Pennsylvania
Colonial Poultry Farms	New Hampshire	28	30.80	Texas
Schaffner Poul. Fm. & Hatch.	White Leghorn	28	30.80	Georgia
Booth Farms	Rhode Island Red	28	30.80	Missouri
R. O. Wagemaker	Rhode Island Red	28	30.75	Long Island
G. B. Treadwell	Rhode Island Red	28	30.70	Maine
Dryden Poultry Breed. Farm	White Leghorn	28	30.65	Western New York
Thomas Mettler	Rhode Island Red	28	30.60	Passaic, N. J.
Riley Poultry Farm	Barred Rock	28	30.50	Oklahoma
J. J. Warren	Rhode Island Red	28	30.40	Michigan
W. A. Seidel	White Leghorn	28	30.30	Arizona
J. J. Warren	Rhode Island Red	28	30.15	Paterson, N. J.
Dryden Poultry Breed. Farm	Barred Rock	28	29.85	Central New York
Dryden Poultry Breed. Farm	Barred Rock	28	29.75	California
Robert N. Depue	White Leghorn	27	29.70	Hunterdon, N. J.
George M. Heberer	White Leghorn	27	29.70	Florida

Twenty Highest White Leghorn Pens in Country to March 1

Owner	Eggs	Points	Test
J. A. Hanson	1767	1855.25	Storrs
Rapp's Poultry Farm	1654	1707.65	Hunterdon, N. J.
Booth Farms and Hatchery	1613	1661.75	Georgia
Kauder's Pedigreed Leghorns	1645	1660.55	Texas
J. A. Hanson	1591	1657.50	Rhode Island
J. A. Hanson	1595	1646.75	Storrs
Crescent Farms	1578	1637.20	Florida
Hollywood Poultry Farm	1689	1589.30	Georgia
Burr's Poultry Farm	1577	1582.15	Pennsylvania
George M. Heberer	1522	1571.35	Florida
George M. Heberer	1533	1560.25	Texas
Rochelle Egg Farm and Hatchery	1569	1556.50	Texas
McCoon's Poultry Breeding Farm	1570	1544.85	Texas
Creighton Brothers	1490	1531.35	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	1438	1513.10	Storrs
W. A. Seidel	1416	1507.70	Texas
Foreman Poultry Farm	1591	1505.65	Georgia
Foreman Poultry Farm	1453	1504.10	Rhode Island
Colonial Poultry Farms	1465	1499.25	Florida
Thomascello Leghorn Breeders	1446	1498.55	Florida

Twenty Highest Rhode Island Red Pens in Country to March 1

Owner	Eggs	Points	Test
E. B. Parmenter	1703	1814.25	Maine
J. J. Warren	1646	1745.20	Long Island
H. J. Hardin	1695	1741.15	Georgia
G. B. Treadwell	1652	1721.45	Maine
L. D. Bartholomew	1619	1715.70	Storrs
E. B. Parmenter	1646	1709.75	Long Island
W. H. Wilson	1714	1700.45	Georgia
J. J. Warren	1608	1694.45	Texas
Missouri Valley Hatchery	1559	1694.15	Missouri
J. J. Warren	1552	1669.05	Maine
E. B. Parmenter	1600	1663.30	Passaic, N. J.
J. J. Warren	1590	1645.90	Florida
E. B. Parmenter	1605	1641.65	Georgia
W. H. Wilson	1606	1637.90	Georgia
J. J. Warren	1541	1637.80	Missouri
E. B. Parmenter	1534	1635.65	Rhode Island
J. J. Warren	1617	1632.35	Georgia
E. B. Parmenter	1608	1622.45	Paterson, N. J.
J. J. Warren	1582	1617.65	Maine
J. J. Warren	1570	1616.70	Storrs

Twenty Highest New Hampshire Pens in Country to March 1

Owner	Eggs	Points	Test
Colonial Poultry Farms	1594	1680.10	Texas
T. J. Harrold	1603	1614.80	Georgia
Williamson's New Hampshire Farm	1510	1576.90	Florida
James H. Horne	1464	1555.50	Storrs
C. D. Cummings	1599	1542.00	Georgia
George A. Pearce	1536	1526.60	Hunterdon, N. J.
M. L. Estabrook	1468	1499.20	Maine
W. G. Ashby	1429	1479.30	Arizona
A. J. Williams	1464	1473.95	Florida
Joachim Breeding Farm	1414	1471.95	Long Island
Pine Mountain Valley Farms	1500	1451.60	Georgia
A. L. Frees	1398	1447.85	Arizona
Hubbard Farms	1393	1445.60	Pennsylvania
T. J. Harrold	1435	1443.35	Georgia
Rhodes Hatchery	1407	1428.30	Florida
Ned C. Willoughby	1424	1418.40	Georgia
Gold Spot Hatchery	1353	1405.85	Arizona
Williamson's New Hampshire Farm	1352	1398.55	Florida
James H. Horne	1342	1393.45	Maine
George A. Pearce	1409	1378.40	Passaic, N. J.

Twenty Highest Barred Plymouth Rock Pens in Country to March 1

Owner	Eggs	Points	Test
T. N. Wilcox	1760	1844.95	Georgia
T. N. Wilcox	1500	1570.15	Florida
David T. Cohen	1423	1496.50	Pennsylvania
Dryden Poultry Breeding Farm	1469	1495.35	Storrs
J. W. Schaible	1476	1485.25	Hunterdon, N. J.
David T. Cohen	1365	1439.80	Arizona
A. J. Urquhart	1392	1435.80	Storrs
Dryden Poultry Breeding Farm	1435	1430.65	Pennsylvania
Dryden Poultry Breeding Farm	1398	1411.50	California
David T. Cohen	1363	1410.10	Georgia
P. N. Hibbard	1457	1407.70	Storrs
E. B. Parmenter	1369	1402.55	Pennsylvania
Foster Jameson	1330	1393.90	Maine
David T. Cohen	1368	1373.40	Storrs
Booth Farms and Hatchery	1305	1371.50	Missouri
Fuzzydele Farms	1346	1369.20	Storrs
Dryden Poultry Breeding Farm	1299	1351.30	Missouri
Ellsworth V. Stanley	1287	1342.60	Pennsylvania
Booth Farms and Hatchery	1309	1319.15	Georgia
Penn's Poultry Breeding Farm	1308	1306.10	Texas

Twenty Highest White Plymouth Rock Pens in Country to March 1

Owner	Eggs	Points	Test
Albert C. Lawton	1462	1422.75	Storrs
Carter-Dunham	1365	1392.75	Texas
Kalerok Farm	1319	1390.90	Rhode Island
Airy View Farm	1288	1313.65	Hunterdon, N. J.
Colonial Poultry Farms	1219	1285.65	Oklahoma
Drumm Egg Farm	1238	1266.20	Georgia
Carter-Dunham	1282	1263.70	Georgia
Alfred Mac Millan	1261	1247.75	Texas
Carter-Dunham	1200	1242.75	Storrs
Booth Farms and Hatchery	1164	1237.90	Missouri
Booth Farms and Hatchery	1260	1234.35	Texas
Riley Poultry Farm	1310	1234.30	Michigan
C. W. Winkler	1184	1223.50	Oklahoma
McDonald Hatchery	1128	1176.40	Texas
Hillview-Imperial Breeding Farm	1183	1173.80	Storrs
John Spangenberg	1159	1171.75	Pennsylvania
Gene-Garden Poultry Farm	1170	1150.90	Maine
Colonial Poultry Farms	1069	1139.40	Missouri
Drumm Egg Farm	1101	1129.50	Georgia
Riley Poultry Farm	1141	1126.05	Texas

Average Production and Mortality in Each Test to March 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Feb.	Per Cent Mortality to Date
Texas	1,300	96.96	97.69	24.16	1.46	6.15
Arizona	390	94.53	97.32	24.69	1.28	5.38
Georgia	1,300	96.82	95.55	23.66	1.38	8.38
Storrs	1,300	93.32	94.78	24.36	1.15	5.23
Pennsylvania	1,027	94.05	94.36	24.07	1.65	6.71
Florida	1,248	92.22	92.89	24.16	2.00	6.41
Rhode Island	546	89.02	92.79	25.00	2.19	6.77
Hunterdon, N. J.	650	90.39	91.16	24.19	1.84	7.53
Passaic, N. J.	1,014	85.51	85.48	23.97	2.85	7.39
Maine	975	83.76	83.34	23.88	1.33	6.46
Paterson, N. J.	169	81.79	82.63	24.24	1.18	8.28
Oklahoma	650	82.93	82.19	23.78	2.15	8.00
Missouri	780	77.18	81.27	25.27	.51	7.94
California	650	76.42	77.18	24.21	1.23	4.30
Long Island	1,131	77.36	76.74	23.80	.88	4.15
Western New York	884	66.66	67.94	24.45	.67	4.75
Central New York	910	65.70	65.33	23.85	1.64	5.60
Michigan	780	66.25	64.72	23.43	1.92	11.15
All Tests	15,704	84.88	85.38	24.12	1.52	6.58

High Pen, Each Breed, in Illinois Non-Standard Test to March 1

Owner	Breed	Eggs	Points
Belldear Hatchery	White Rock	795	819.25
Walter Swanson	White Leghorn	800	775.65
Belldear Hatchery	White Wyandotte	663	713.35
Coyne Poultry Breed. Farm	New Hampshire	688	698.90
Wallace Moody	Buff Rock	696	688.20
Illinois Hatchery	Barred Rock	693	687.70
Illinois Hatchery	Rhode Island Red	580	596.50
Illinois Hatchery	Brown Leghorn	492	524.10
Berry-Ajax Hatchery	Black Australorp	307	294.65

High Pen in Each Breed, Vineland, N. J., Hen Test to March 1

Owner	Breed	Eggs	Points	Class
J. J. Warren	Rhode Island Red	733	800	Two-Year
Vaughn's Hatchery	New Hampshire	620	671	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	610	664	Two-Year
Eben Wood	Barred Rock	533	580	Two-Year
E. R. Rutter	White Rock	527	568	Two-Year
J. A. Hanson	White Leghorn	500	541	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	241	263	Four-Year
J. J. Warren	Rhode Island Red	167	178	Four-Year
Dembro Poultry Farm	White Leghorn	770	841	Mixed-Age
Schwegler's Hatchery	Barred Rock	578	617	Mixed-Age
Wene Chick Farms	New Hampshire	464	505	Mixed-Age
Quimby School	White Rock	428	446	Mixed-Age
Kerr Chickeries	Rhode Island Red	408	445	Mixed-Age
Schwegler's Hatchery	White Wyandotte	331	353	Mixed-Age

High Pen in Each Breed, Vineland, N. J., Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	4681	4988	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	4633	4886	Two-Year
Eben Wood	New Hampshire	3849	4157	Two-Year
Eben Wood	Barred Rock	3813	4096	Two-Year
E. R. Rutter	White Rock	3831	3980	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	6997	7563	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	7766	8387	Four-Year
J. J. Warren	Rhode Island Red	7158	7687	Four-Year

High Pen in Each Breed, Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Lindstrom Poultry Farm	White Leghorn	4475	4772.50	Two-Year
Crooks Farm	Rhode Island Red	4419	4700.35	Two-Year
Schwegler's Hatchery	White Wyandotte	4008	4142.45	Two-Year
E. B. Parmenter	Barred Rock	3943	4110.45	Two-Year
Pine Top Poultry Farms	New Hampshire	3736	3916.70	Two-Year
Claribel Henault	White Rock	3738	3870.20	Two-Year
Schwegler's Hatchery	White Leghorns	6848	7194.00	Three-Year
J. J. Warren	Rhode Island Red	6934	7060.10	Three-Year

High Pen in Each Breed, Pennsylvania Hen Test to March 1

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	818	895.75	Two-Year
Crooks Farm	Rhode Island Red	794	866.45	Two-Year
Schweglers Hatchery	White Wyandotte	793	852.75	Two-Year
E. B. Parmenter	Barred Rock	658	711.80	Two-Year
Pine Top Poultry Farms	New Hampshire	608	652.40	Two-Year
Claribel Henault	White Rock	589	637.85	Two-Year
Schwegler's Hatchery	White Leghorn	712	767.60	Three-Year
J. J. Warren	Rhode Island Red	598	653.55	Three-Year
R. H. Barteaux	White Leghorn	709	768.85	Mixed-Age
E. B. Parmenter	Barred Rock	645	701.45	Mixed-Age
E. B. Parmenter	Rhode Island Red	602	657.25	Mixed-Age
Fuzzydele Farms	New Hampshire	505	548.40	Mixed-Age

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Vol. 3, No. 29 May 15, 1941

Wickard Urges More Eggs and More Chickens to Build Food Reserves

U. S. Dept. of Agriculture Release, April 16, 1941

A NATIONWIDE drive to produce every possible egg from present laying flocks this spring and summer was launched today by Secretary of Agriculture Claude R. Wickard. The effort is a part of the nation's determination to assure ample food supplies for the United States, Great Britain, and other nations resisting aggression, and should increase egg production for the whole country in the next 15 months by about 6 per cent, or about 10 million cases of 30 dozen eggs each.

Egg Prices to be Supported

The goal can be achieved, poultry specialists say, partly by ample feeding — beginning immediately — and partly by filling up the Nation's poultry houses to capacity with laying birds this fall. Feed supplies are plentiful, and prices moderate, and the Department of Agriculture has announced it will support long term egg prices at an average of about 22 cents (Chicago basis) until June, 1943, a figure which should make egg production profitable. Ample feeding means that egg production, which usually begins dropping in June, should remain at higher levels in the late summer months.

Also, to fill poultry houses to capacity this fall and next spring with laying hens, the Department says an increase of around 15 per cent in chicks raised over the number in 1940 is advisable. The hatchery industry is geared to take care of this increase. According to Department experts, supported prices should enable producers to go ahead with plans for feeding for maximum egg production and increasing the size of flocks.

Eggs Ideal as Defense Food

Eggs, it is pointed out, are among the foods selected for increased production because they are ideal for converting ever-normal granary feeds into defense foods. Production can be stepped up very quickly by better feeding of hens already on farms. Eggs are highly nutritious and can be kept in cold storage for several months or in frozen or dried form for a year or more. It is in the latter form that eggs are of greatest value when shipping space is limited. A case of 30 dozen eggs dries down to about 10 pounds. A recent checkup shows that egg drying facilities are ample for an increase in production.

The egg-drying industry is concentrated in Texas, Oklahoma, Missouri, Nebraska, and Illinois. These and the neighboring states are the major surplus egg-producing states. Department of Agriculture and Census data show a big decrease in this area in poultry members during 1930-1940, much of it in the drought years of 1934 and 1936. But now feed is abundant there.

A recent survey in cooperation with state poultry specialists shows that in these states there are unused poultry housing facilities to take care of a 15 to 20 per cent increase in poultry numbers. A February 1 report of the Agricultural Marketing Service shows that although farmers in the country as a whole intended to increase baby chick purchases by about 9 per cent, farmers in the West North Central States, had intentions to purchase only 6 per cent more, and farmers in the East North Central States, intended a still lower increase—3 per cent. These numbers should be stepped up to meet defense demands, in the view of Secretary Wickard.

Thus, it is believed, that it is to the best interests of farmers the country over to increase laying flocks up to housing capacity, but especially in the Middle Western States. Poultry specialists emphasize that expansion in permanent new housing is probably not justified, but in the North Central area and in some Southern states a good increase in laying birds could be obtained, if the need arises, with such inexpensive temporary houses as those of straw or cement coated burlap.

About 6 Per Cent More Eggs Needed

In commenting on the national program of farm and commercial poultry producers to turn ever-normal granary feeds into food for defense, Secretary Wickard said:

"This nation and the other democracies are going to need from United States flocks during the 15 months from April 1, 1941 to June 30, 1942, an increase in egg production of about 6 per cent over that normally to be expected.

"To produce these eggs, flock owners will need to feed heavily to get every possible egg from laying hens on hand this spring and summer. They will need to save over every good layer for next fall and winter's egg production. They should, in addition, hatch or buy enough chicks this spring, and save enough pullets, to fill the laying houses of America to capacity for next spring's production.

"Immediately, poultry producers need to feed for more egg production from present flocks. It will, we feel, be profitable to do so. Feed supplies are plentiful. We are going to release loan corn at the loan rate plus certain carrying charges. We are going to support egg prices at a long term average of 22 cents, Chicago basis. There is every reason to feed from now on for heavy egg production.

"I have every confidence that farm men—and farm women, too, for on millions of general farms, the poultry flock is the responsibility of the farm wife—will step up feeding for egg production now, keep it stepped up, and fill the existing poultry houses of America to capacity with laying birds for next spring's production. By so doing, they will play an important part in the defense effort of the United States."

Increasing Fertility in Turkeys

Time after time, I have seen where poor fertility has been due to preferential matings. In other words, certain males do not like some hens, and some hens dislike particular toms. Where small pen matings are used, toms should be rotated each day to overcome these preferences. Having the birds mate with different pens will overcome preferential matings.

In addition, separate the breeding pens by using burlap bagging, or a 3-foot board fence, so the birds cannot fuss and fight through the wire. When they are prevented from fighting, they will spend all the time feeding, and matings with better fertility will result.

—O. K. Moore, Turkey World.

Packers Move Against Inedible Poultry

Excerpts from U. S. Egg and Poultry Magazine

Editor's Note: Last summer's campaign against inferior poultry by a New York newspaper touched off an explosion, repercussions of which were felt at Omaha, Nebraska, where the Institute of American Poultry Industries held its annual Fact Finding Conference in February. The following are excerpts of talks by industry members and a government official which give an insight into what changes may be expected in the industry as regards the buying, packing, shipping, and marketing of poultry.

FAIR but uncompromising, J. O. Clarke, chief of the central division of the Federal Food and Drug Administration, made it unmistakably clear that the government means business when it says it will stop the shipment of inedible poultry in interstate commerce.

"At the present time," Mr. Clark said, "we think the Food, Drug and Cosmetic Act of 1938 provides for really effective control of our food supplies." It makes interstate traffic in adulterated food a federal offense, he pointed out, and provides certain "remedies" which the federal courts may apply in case of violation of the law.

Fines Have "Deterring" Effect

"The corrective effect," Mr. Clarke continued, "is brought about by means of seizures, prosecutions, and injunctions. Any adulterated poultry shipped in interstate commerce can be seized. This prevents its further distribution by removing it from the channels of commerce. Any shipper of adulterated poultry in interstate commerce can be prosecuted after a hearing in the federal courts. Fines imposed upon shippers for violations have a certain deterring effect."

Most potent of these measures, however, is the injunction proceeding—something new provided by the law of 1938. "This provision," Mr. Clarke said, "empowers the federal courts to issue injunctions against the shipment of adulterated poultry in interstate commerce and, therefore, prevents violations of the law."

The Food, Drug and Cosmetic Law defines a food product as adulterated . . .

1. "if it is in whole or in part the product of a diseased animal, or of an animal which has died otherwise than by slaughter." Section 402 (a) (5)

2. "if it consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food." Section 402 (a) (3)

3. "if any substance has been added thereto or mixed or packed therewith so as to increase its bulk or weight . . . . or make it appear better or of greater value than it is." Section 402 (b) (4)

Grade Buying is the Answer

"Armed with the Institute's quality grade buying program, the industry is prepared to meet the challenge implied in the accusations of the New York City Board of Health and the Food and Drug Administration," Del Meeks, Armour & Co., told plant operators at the Fact Finding Conference.

The authorities say the poultry packers are directly to blame for the inedible poultry that has been reaching New York markets and that it is the packers' responsibility to see that unwholesome poultry is kept out of commercial channels by careful culling at the point of origin.

"Inasmuch as it is obviously the plant manager's business to see that neither he nor his employes buy worthless or poor quality birds," Meeks said, "I think these accusations may be warranted. It is evident from what has been happening in New York that an improvement plan is urgently needed."

This program, originally worked out by the Institute's Regional Committee, recommends that operators. .

1. Reject all worthless and cull poultry.
2. Buy all poultry on a strict quality grade, using the Institute live poultry grading specifications as a basis for determining the grade.
3. Base the price they pay for number one and number two birds on the resale price for each grade.
4. Buy on a plant weights and grades basis whenever possible.

"I think all of us will agree that the Institute's live poultry buying grades are practical," said Mr. Meeks. They divide live poultry into three simple classifications: No. 1 poultry—top grades, which are profitable to raise and market; No. 2 poultry—all other healthy birds, which are not very profitable to handle; Worthless (No. 3) poultry – birds which are unfit for human consumption and which should be destroyed.

"It is definitely to the farmer's advantage to sell his poultry direct to the plant on a quality grade, because he gets a better price for it than the farmer who sells on a straight run basis. Increased returns encourage producers to raise better poultry and better poultry means greater consumption."

Success With Plan

"It can be done," said G. D. McClaskey, field secretary of the Kansas Poultry and Egg Shippers Assn. "Poultry can be bought on a quality grade and we're buying a good deal of it that way in Kansas right now. The fact that the door business of 38 Kansas plants is a 100 per cent quality grade proposition proves pretty conclusively that grade buying is both practical and profitable.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, May, 1941)

Those 38 plants wouldn't buy it that way, if it wasn't.

"We have reached the point now," he said, "where we have sold a number of country operators—first buyers—on the idea of buying on a quality grade. There are however, a great many more who don't buy on grade, and the further we get from the farmer in the buying set-up, the fewer we find who do.

"The plants that are buying on grade and doing a bang-up culling job are on the right track. But we can't stop there. We've got to go further and buy the rest of our poultry on the basis of its resale value."

News from the Front

"The situation is serious. No one wants it, but it exists, and it is up to the industry to correct it," said Dr. Mary E. Pennington, whose first-hand knowledge of what has been going on in New York lent authority to her words.

"You and I know we have slipped on this grading business," she continued. "We have recognized the fact we haven't been doing as good a job as we should. We have talked about it, but we have not been sufficiently aware of the degree to which we have been slipping to correct the situation ourselves."

Place for Good Third Grade Birds

Dr. Pennington pointed out that there have been a good many derogatory references to third grade poultry since the matter of marketing diseased poultry flared up.

"As a matter of fact," she said, "the third grade is one of recognized usefulness and, if it is made up in accordance with grading rules, it carries no stigma. A thin bird is not necessarily unwholesome. The trouble has been that birds which did not correspond to the requirements for the third grade, and which too frequently were diseased or otherwise inedible, were mixed with good chickens in third grade boxes.

"The authorities are ready and willing to give us every assistance and to cooperate with us in clearing up a very unfortunate situation. The responsibility is ours."

◀◀ A FILM fan watching Myrna Loy plaster William Powell with an omelette was heard to murmur feelingly: "What a waste!"—We are charitable enough to presume the Lady of the Sigh had only the omelette in mind.
—Eggs, London, England, Feb. 12, 1941.

◀◀ A SUBSTANTIAL market in Greater Boston has been developed for a 10-cent individual or single-serving chicken pie, ready to eat cold, or hot, by simply heating it in the oven, according to the U. S. Egg and Poultry Magazine.

War Strikes the Channel Isles

By A. SANDFORD BLICQ
Manitoba, Canada

Condensed from Canadian Poultry Review

Editor's Note: Mr. Blicq, an editor by profession, and an ardent poultryman, here describes the evacuation by thousands of families, his own included, from the Channel Isles. The author is now in Canada. The Review editor commented, "Read this, Canadian poultrymen, and count yourselves blessed." The suggestion may apply in the United States, too.

WAR STRUCK a cruel blow at the British Channel Isles. When thousands were evacuated at a few hours notice, the poultry farmers were among those hardest hit. Many who came away were financially ruined. Those who remained were soon faced with the problem of having no feeding stuffs for their stock.

From boyhood, I had been keenly interested in the domestic fowl. At the time of the fall of France and the subsequent German bombing and occupation of the Channel Isles, I had a developing poultry farm that, including the young chicks, was somewhere around 1,000 head. The blow fell so fast on the islands that an instant decision had to be made. Overnight I had lost home, possessions, and the poultry farm; my three children had gone on to England, and the whole of my possessions were packed in a suitcase.

You will notice from the map that the Channel Isles, the oldest corner of the British Empire, an intensely loyal, progressive and industrious people, were in a highly dangerous position when France fell. The early probability of German occupation, and the spectre of starvation for a population of 100,000 or so loomed. And at that moment the British government came to the rescue by the provision of transport for the evacuation of all who wished to go.

Moving Scenes in the Schools

Official notice was circulated at four in the afternoon that parents who wished their children to go would have to give notice in the schools at seven that evening. It was a moving scene. Thousands of children went that night. The calm of the parents was amazing during this emotional hour of parting, with the knowledge that their children would have to cross a submarine infested English Channel; with the thought that they, the parents, might be caught in the German occupation and might not see their children for years. The children, too, were mag-

From "War Strikes the Channel Isles Poultry Farmers"
Canadian Poultry Review, March, 1941

nificent. They faced the ordeal with rare courage; and went, singing like soldiers, to join the coaches that carried them down to their transports.

My own three children went that night. In the morning I went out into the garden, amongst my dogs and poultry, and faced the problem—what was to be done about it all?

There were some seven hundred chickens, from one day up to sixteen weeks old; and there were some three hundred older birds, including special pens of table birds. With the occupation by enemy forces, the foodstuffs supply from Britain would be cut off altogether. It was already one-third of normal. There were only a few hours in which to decide on a course of action. The birds could not be left there to starve. And it was absolutely impossible to take as much as a handful of chickens.

Years of Experiment

The stock was chiefly composed of the famous old English breed of Light Sussex. This bird is a good egg producer and the table qualities of its white flesh are excellent. There were also many pens of Rhode Island Red by Light Sussex on Light Sussex. This cross is sex linked and still (despite the crossing back) retains the advantage of all the cock chicks being light buff and the pullets dark buff at hatching, with the obvious advantage of immediate sex identity.

Gave Away the Whole Lot

The evacuation of the adult population was under way. But the farmers proper would not leave their famous breed of cattle. My property bordered on a farm. I gave the whole of my stock and appliances to that farmer. At least the birds would provide food for his table for quite a time. A last feed was given by hand to the three older birds which had been the children's particular pets . . . and so the hours drew on, the closing of a chapter was near.

My wife and I went through the house for the last time. We crowded all we could into a suitcase each. Took a last look at the children's nursery, went out into the garden and looked over the flowers, the rambler roses lying in rich profusion over the arches, strolled for the last time through the poultry pens . . . returned to the house, gathered our suitcases, and went out into the fading evening. We shut the door of our home behind us, put the suitcases into the car and, without a look back, drove away. We left the car on the quays. There were thousands of others left there, too.

Now the old urge returns to try to rebuild it all up again here. But that is going to be a very slow and very long task.

Breast Blister Research . . . Are We on the Right Track?

By G. C. HODGSON and H. S. GUTTERIDGE
Dominion Experimental Farms, Ottawa, Canada

Condensed from Canadian Poultry Review

THE problem of producing market chickens, particularly of roaster age, having no blemishes or blister-like formations appearing over the breast bone, is of great importance to all raisers of market poultry. A study of this problem by the Poultry Division of the Experimental Farm Service has been in progress for four years. Particularly during the last two years has this project received special attention.

As far as is known, this is the first attempt that has been made to approach the question from a scientific standpoint. Due to a complete absence of previous information on the subject, the development of the problem must of necessity be slow.

The information to date suggests that the formation of breast blisters is a complex phenomenon involving at least three factors: nutrition, heredity, and environment.

Body Shape and Breast Blisters

In the early part of this work, efforts were made to correlate the shape of the birds' bodies, as determined by various body measurements, with the incidence of blister formation. The accumulated evidence of these experiments indicates that erroneous observations have been made by those claiming that sharp breasted birds had a far greater incidence than plumper ones. This conclusion has been borne out many times in Barred Rocks, and the fact that such round breasted birds as Cornish are also subject to blistering lends further evidence for our views.

Breast Blisters and Roosting

The idea has been rather generally accepted in the past that the cause of blisters could be attributed directly to the type of roosts provided for growing birds. Until recently, no controlled experiments had been conducted to substantiate or deny this opinion.

A summary of our work on the influence of various roosting conditions on the development of breast blisters is shown in Table 1. In these studies we found the incidence of breast blisters to be relatively uniform and concluded that roosts

Donovan Publications, 184 Adelaide St. West, Toronto, Canada
(Canadian Poultry Review, February and March, 1941)

TABLE 1—Influence of roosting conditions on development of breast blisters

Conditions Provided	No. of Birds	Per cent Blistered
Normal range conditions 2 in. wide roosts	46	39.1
Normal range conditions 2 in. wide roosts	46	50.0
Normal range conditions 2 in. wide roosts	331	44.4
Normal range conditions 2 in. wide roosts	407	38.5
No roosts—sand floors	53	35.8
No roosts—sand floors	48	43.7
Roosts 4 in. wide	48	35.4
Roosts 4 in. wide	40	40.0
Roosting over wire floors	40	72.5
Roosting over wire floors	57	50.9
Roosts 1½ in. diameter	98	48.9
2¾ in. slats, 1½ in. apart	53	52.8
Deep shavings to 16 weeks	55	32.7
Control, normal brooding and rearing	51	35.2
*Decreased rate of growth (restricted feed)	51	19.6

*When at same stage of maturity as other three groups, blister incidence 31.3%

could not be considered as the primary cause of blistering.

Table 2 gives the percentage of blisters at 22 weeks of age found on each of three treatments. With group 1 showing an incidence of 52.8 per cent, there was no advantage and possibly a disadvantage, in using a type of roosting area advocated for the prevention of blisters. Similarly, rearing on deep litter to 16 weeks gave no advantage over the control pen, or when compared to the flock average as found in Table 8. The information gained from these experiments adds to and supports our previous results and conclusions that the nature of the roosting accommodation is not the primary cause of breast blisters

Referring again to Table 1, it will be seen that although the extreme range of blister incidence is wide, by far the greater proportion lies within relatively narrow limits. The group producing the lowest percentage of blisters (19.6 per cent) and designated as "Decreased rate of growth (restricted feed)" was fed such limited amounts of a complete diet as to retard development. At the time these observations were taken, when the birds were 22 weeks old, a comparable lot of the same age which had received normal treatment had an average weight of 650.3 grams greater than those on the restricted feed intake. It is of interest to note that the group on normal treatment attained the 22 week average weight of the restricted lot six weeks earlier, (i.e., at 16 weeks of age) and at that time this group had a blister incidence of 19.3 per cent. Two other normal groups at this same stage of growth showed incidences of 9.1 per cent and 28.3 per cent respectively. When, at 29 weeks of age this "restricted feed" group attained approximately the 22 week average weight of the normal lot, the incidence of blister observed was 31.3 per cent.

The use of crates during the fattening period is commonly cited as a predisposing cause of blisters. In this connection a preliminary fattening trial was conducted using Barred Rock males a wire-floored fattening battery. The average weight of the birds was 5.1 pounds. On

completion of the test the birds were re-examined for size and number of blisters present. The results may be summed up by saying that fattening in crates for 2 weeks did not aggravate blistering. Further work along this line is at present in progress.

Battery Chicks Affected

Rearing baby chicks in batteries having wire floors had a very definite influence on the production of breast blisters. Chicks raised in this manner have produced as high as 85 per cent of the birds blistered by 12 weeks of age. Under these conditions, the further observation was made that males and females of the American and Mediterranean breeds were equally susceptible to blister formation. That this is different from the results obtained under normal brooding and rearing practice is later adequately demonstrated.

The placing of roosts in chick batteries as a means of preventing blisters has also been experimented with. Small round roosts of ¼-inch diameter covered the wire floor area where the chicks were enclosed. Special care was taken to see that these roosts were under the heating pads where the young chicks spent most of their time. It was observed that by the end of the second week most of the chicks stood on the roosts rather than on the wire floor. By the time this group of chicks was 10 weeks of age, blisters were starting to develop, and by 12 weeks were blistered equal to that of the control group. It is felt that this work might be profitably repeated using other methods to cover the wire flooring.

TABLE 3—Influence of weight on incidence of blisters

No. of Blistered Birds	No. of Normal Birds	Av. Wt. of Blistered Birds	Av. Wt. of Normal Birds	Diff.
		Gms.	Gms.	Gms.
28	25	3023.6	2883.4	140.2
18	37	2925.7	2851.6	74.1
18	33	3082.5	2962.9	119.6

Body Weight Not a Factor

Practical poultrymen generally believe that only the large birds in their flocks form blisters. We have been able to compare the weights of a number of blistered and non-blistered birds. Table 3 shows that there is an inconsequential difference between the average weight of these two classes of birds. In similar work done on two separate occasions, even smaller differences were found. Therefore, it seems evident that birds of all sizes are equally prone to

TABLE 2—Incidence of breast blisters occurring on slatted roosts and shavings

Roosting Treatment	No. of Birds	Per cent Blistered
2¾ in. slats—special 1½ in. apart (Deep shavings to 8 wks.)	53	52.8
Deep shavings to 16 weeks	55	32.7
Control. Normal brooding and rearing	51	35.2

develop blisters. Field work also bears out this observation. Capons are as susceptible, if not more so, to blister formation as cockerels.

Age at Blister Development

In attempting to determine the age at which blisters develop on cockerels under range conditions, 4 groups of 60 birds each were observed at weekly intervals, and individual records kept of the exact time blisters were first noticed. By taking the total number of blistered birds surviving at 22 weeks of age, when the experiment concluded, as equaling 100 per cent, all 4 pens were put on a comparable basis.

Table 4 shows the weekly per cent increase in the number of blisters recorded. The results of this work indicate that at least until the birds were 21 weeks of age, new blisters were still appearing. The greatest increase in formation took place between the eighteenth and twentieth weeks. In a similar type of observation in 1939, it was found that over 80 per cent of the total blisters that occurred, developed before the birds were 16 weeks of age.

The exact reason for this difference in age at the time of blister development has not made itself clear. However, one difference existing between this year's and last year's stock was the fact that the birds used in 1939 were hatched in early April, while this year's birds were hatched in the latter part of May. The 1940 birds also suffered a set-back by an outbreak of coccidiosis early in July. Whether there is any relationship between these two circumstances and the later outcropping of blisters this year has not been ascertained.

Influence of Breeds and Sex

The influence of a breed and sex difference in the expression of breast blisters has long been observed. The females of the breeds so far observed are remarkably free of blisters at all times, under normal rearing conditions. The males of the light breeds, such as Leghorns, are also known to be relatively free of the condition. From our own observations, and from information obtained through packing plants, branch farms, and grading stations, it has been established that the males of the American breeds are subject to a severe incidence of the blistered condition.

Observations have also been made on a limited number of Sussex and Cornish fowl of both sexes. Blisters were found on the males but not on the females. Although the numbers were small, evidence was secured to show that these English breeds are also susceptible to blister formation. Differences between Barred Rocks and Leghorns of both sexes have been recorded.

An examination of Table 5 indicates the extent to which these breed and sex differences exist. Since relatively large populations were used, it can be considered that they represent a fairly true picture of the actual incidence. These observations were made each year on the general flock of this Division while they were on range, between the ages of 5 and 6 months. It should be pointed out that by no means all of those birds recorded as being blistered were so disfigured as to render them unfit for the retail trade. As a matter of fact, only 10 to 15 per cent of them at the most would be graded down due to the size of their blisters. Further evidence of this is clearly shown in Table 7.

Influence of Sires

In the foregoing study we have shown that there is a decided breed and sex difference influencing blister formation. While pursuing this work, evidence was secured pointing to the view that the inherent constitution of the male bird might influence his male progeny in regard to the number of blisters produced.

Of the 14 sires used for breeding in 1939, one had 41 sons. These male progeny showed a blister incidence of 4.8 per cent, while the sons of

TABLE 4—Age at which breast blisters develop

No. of Birds	No. Bl.	Per cent blistered, by weeks of age 0-8	8-10	11	12	13	14	15	16	17	18	19	20	21	22
53	28				3.5	10.7	17.9	17.9	21.4	50.0	53.5	92.8	96.4	100.0	100
55	18				5.5	5.5	16.6	16.6	16.6	22.2	27.7	61.1	77.7	88.8	100
51	18		5.5	5.5	22.2	22.2	38.8	44.4	55.5	66.6	72.2	72.2	94.4	100.0	100
51	10					10.0	10.0	10.0	10.0	30.0	30.0	30.0	60.0	90.0	100

TABLE 5—Influence of breed and sex on expression of breast blisters

Breed	No. birds observed	Per cent blistered	No. birds observed	Per cent blistered
B. P. R.	486	45.4	549	3.1
B. P. R.	407	38.5	626	1.1
S. C. W. L.	225	2.6	331	0.0
S. C. W. L.	214	2.8	341	0.0

TABLE 6—Influence of related sires on incidence of blisters

Grand sire	No. of sons	Per cent of sons blistered	Sire	No. of sons	Per cent of sons blistered
	(1939)			(1940)	
914	41	4.8	924	32	9.3
842	67	31.3	920	46	43.4
908	29	37.9	917	17	11.7
			919	36	47.2
			922	23	21.7
818	46	39.1	925	25	40.0
			926	20	75.0
			927	27	48.1
910	32	46.8	923	17	23.5
907	40	67.5	918	44	47.7
			921	14	57.1
911	38	73.6	928	42	38.1
			929	32	40.6

other males were all above 30 per cent. Unfortunately, this resistant male, No. 914, died during the winter of 1939-40. However, a son of his, along with the sons of six other 1939 males, were incorporated in the 1940 breeding program. In Table 6, these related sires, along with the number of their progeny and the incidence of blister formation, are set out opposite each other to facilitate comparison. This table shows that, of the related sires used, only 914 and his son, 429, showed any consistent relationship from year to year in the percentage of blisters in their sons.

This information points to the fact that the genetic constitution of the individual is in a small measure associated with blister formation. Since there has been no direct selection for breast blisters during the past 10 years, however, there can be no reason for a change in the germ plasm of the fowl which would contribute to the relatively recent widespread occurrence of this condition. On the other hand, in the same period, there have been marked changes in methods of management and nutrition. Therefore, in further pursuing this problem it would seem logical to concentrate on the questions of nutrition and management, and in particular on the nutritional aspect.

In two years, 893 pedigreed Barred Rock males have been carefully observed for the size and nature of their blister development and their heredity determined as to sire and dam. Table 7 summarizes this information according to sires. Due to the large number of dams involved, the relatively small son population per dam and the consistent nature of the data obtained, tables covering the dams have been omitted. It is sufficient to state that there was no apparent relationship between the dams and the blisters found on their sons.

TABLE 7—Size and number of blisters developed according to sires

Sire No.	No. of observed sons	None	Small no fluid	Medium	Large	Per cent of sons blistered
818	46	28	16	2	0	39.1
842	67	46	19	1	1	31.3
843	35	17	16	0	2	51.4
905	27	5	13	7	2	81.4
906	46	29	9	8	0	36.9
907	40	13	18	5	4	67.5
908	29	18	10	1	0	37.9
910	32	17	13	0	2	46.8
911	38	10	26	2	0	73.6
912	50	24	19	3	4	52.0
913	16	6	5	3	2	62.5
914	41	39	2	0	0	4.8
916	6	4	2	0	0	33.3
47065	13	9	4	0	0	30.7
Total	486	265	172	32	17	45.4
% of total	100	54.5	35.4	6.6	3.5	

General Observations

Bacteriological determinations have been made which show that the fluid that forms in blisters is completely sterile. Consequently, this material which forms has no offensive odor when freshly drawn. Chemically, the fluid approximates that of native plasma in chickens.

The possibility of breast blisters being another manifestation of leukosis was investigated. Evidence indicating no such connection was so strong that this approach to the problem was abandoned.

Investigational work is proceeding along several lines at the present time in an endeavor to become more familiar with blisters and their development. In the coming year we expect that nutritional work will play an especially prominent part in these experimental studies.

Summer Roosts for Turkeys

Just as soon as the turkey poult has developed to the stage of "shooting the red" or getting red heads, they may be permitted to roost in the open with perfect safety. Getting wet will do them no harm, as the feathers over the back have developed sufficiently to protect the bird. The weather is warm at this time and the poults do much better when roosting outside.

Suitable roosts should be provided for the growing birds and these should be high enough off the ground to protect the birds from foxes or other beasts of prey. It will be found that no matter how high the roosts are located the top ones will be filled every night. The easiest way to provide roosts is to have them all about the same level so that there is no struggle for favored positions. Round poles make very desirable turkey roosts and these poles should not be too large. Turkeys like to get a good grip on the roost and rest more comfortably when this is possible. Supports should be placed at regular intervals under the poles so as to keep them from breaking, particularly when the birds develop as the season advances.

The roosts should be at least 6 feet from the ground for the safety of the poults. Regular cleaning up of droppings is always advisable so as to prevent foul odors near the roosting quarters. Feed and water stands should never be placed near the roosting grounds.

—A. G. Taylor in the Canadian Poultry Review.

Special Breeding for Broilers

By T. B. CHARLES
University of New Hampshire

Condensed from New England Homestead

MEAT type can no doubt be improved in most of our important breeds. In practically all of the genetic studies dealing with the inheritance of body size, chicks have been intermediate between the parents in size.

It seems quite apparent, however, that no great distinction, if any, has been made between shape and size. It is equally self-evident that size and shape are not synonymous terms, but have been most frequently so used.

What Is Meat Type?

Most of our important commercial breeds are of the dual purpose type—meat and eggs. Much attention has been given to breeding for egg production, but relatively little to meat type. Little is known about the inheritance of body type (not size), and there is a wide variation in ideas about meat type.

Practical Breeding Results

If I may be permitted to refer briefly to the development of the New Hampshires, practical breeding results can be pointed out. For a period of 35 to 40 years, the "little red hen" has been growing up on the New Hampshire landscape. This bird was not bred or selected to a "fad," but was the result of breeding for practical economic points.

Then, about 1918 to 1928, came along the intensive winter broiler days, and the New Hampshire Red was subjected to the crucible of the broiler years, where breeding for meat type, rapid feathering, and rapid growth was greatly intensified. With this emphasis on meat type and quality, have been added years of breeding for production of large numbers of eggs of good size, shape, and hatchability. No doubt meat type can be improved in all our important commercial breeds.

"Fad" Breeding

Some of our breeds which were important years ago have faded out of the picture because new breeds have been developed with greater economic values, and because "fad" breeding has wrecked breeds that basically had fine body type for meat.

Jaap, of the Oklahoma Agricultural Experiment Station, has suggested three groups of birds so far

From "Where To from Here?" in New England Homestead, Feb. 22, 1941
New England Homestead Co., 29 Worthington St., Springfield, Mass.

as body conformation is concerned:

1. Broad, plump breast at an early age and retain this excellent market shape throughout life (Cornish).

2. Those which attain a fair car-

of superior body type for meat that also possess suitable production characters. However, let us not be caught napping — breeders are just beginning to sense the importance of improving body type in many of

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At a recent poultry meeting, Dr. E. L. Brunett told his audience that sometimes he received at his laboratory in the New York State Veterinary College sick chicks in which the only unusual symptom is that their eyes are slanted like those of an oriental. The owners want to know what is wrong. Dr. Brunett usually surprises the owner by saying, "you are using an oil brooder, are you not?" The answer always is, "yes."

The cause of the slanted eyes is a blister on top of the head which pulls up the skin from around the eyes. The blister is caused by kerosene. Obviously, the chicks are getting their heads against an oily spot on the oil line, thermostat, or container. It should be easy to protect the chicks against this trouble. It is not a disease, but Dr. Brunett calls such cases "China Boy" chicks.

—American Agriculturalist.

Special Breeding for Broilers

By T. B. CHARLES
University of New Hampshire

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as body conformation is concerned:

1. Broad, plump breast at an early age and retain this excellent market shape throughout life (Cornish).
2. Those which attain a fair carcass during growth, reaching best market shape at maturity (American and English classes).
3. Those which are thin and angular during growth, grow to a relatively large size and at maturity only have a superior body shape.

Jaap further states, "growth to eight weeks appears to be a separate entity and not necessarily related to adult weight." Also, that differences in conformation of live birds may be accurately expressed by comparing body weight, shank length, keel length, and minimum anterior body depth.

There are available today, breeds of superior body type for meat that also possess suitable production characters. However, let us not be caught napping — breeders are just beginning to sense the importance of improving body type in many of our important breeds. Care must be exercised in attempting to improve along that line lest we lose what we have already gained of other economic production values.

My prediction is that within the next 10 to 20 years more real progress will be made in poultry breeding than in all the years to date. Watch out for such things as better meat types, auto-sexing breeds (a number already exist), and hybrids.

Already, special breeding work is being done to improve the development of chicks at broiler age. It is a problem worthy of due consideration by all breeders today.

China Boy Chicks

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—American Agriculturalist.

Cooling Laying Houses in Summer

By V. S. ASMUNDSEN
University of California

Condensed from Nulaid News

BECAUSE the high summer temperatures in the interior valleys of California sometimes cause excessive hen mortality and decreased egg production, a series of experiments was conducted at the University of California, Davis, to determine the feasibility and value of cooling poultry houses. These experiments, which were started in 1938, consisted of comparing the egg production, mortality, weight of birds, size of eggs, and feed consumption for birds in cooled and non-cooled houses.

Four groups of Single Comb White Leghorn pullets in their first laying year were used. Two of the groups were fall hatched and were about 6 months old when started in the experiment while the other two were spring hatched, and were about 12 months old.

The Cooling System

The houses consisted of 16 by 18-foot sections of a long shed roof house equipped with three-way curtains on the front, and windows under the dropping boards in the rear. The cooled section was equipped with an evaporative type cooler mounted in the front of the house about three feet above the floor.

The cooler had a 19-inch fan, driven by a one-eighth horsepower motor, and was capable of giving one air change a minute in the house. A thermostat located under the dropping boards turned the cooler on when the temperature went above 85 degrees Fahrenheit and off when it dropped below 80 degrees. No attempt was made to insulate the house other than keeping the curtains and windows closed when the cooler was in operation. In the uncooled section, the windows and curtains were open at all times during warm weather.

No trouble was experienced in maintaining a temperature of less than 90 degrees Fahrenheit in the cooled house, even with outside temperatures as high as 110 degrees. The energy required to operate the fans varied between 75 and 100 kilowatt hours per year.

Results Obtained

The results obtained with one group of fall-hatched birds showed no difference in the total egg production for the year, but did show a marked difference in the distribution. During July, August, and September, the production in the cooled house was more than in the non-cooled house, while during the fall months the production in the cooled house was less than in the non-cooled.

Producers Company, Ltd., 840 Battery St., San Francisco, Calif.
(Nulaid News, March, 1941)

With the other group of fall-hatched birds, the production for the year was greater in the cooled house than in the non-cooled. With this group, the production in the two houses remained about the same until a hot spell in September, when the birds in the non-cooled house went into a heavy molt. This reduced the egg production markedly, and it remained less than in the cooled house for the balance of the year. The mortality for both groups was lower in the cooled than in the non-cooled house, but the difference was not great enough to be significant. The weight of the birds was practically the same for both houses, while the size of eggs was slightly larger in the cooled house during hot weather, and the feed consumption was greatest with the highest egg-producing birds.

The results obtained with the two groups of spring-hatched birds were markedly different from those with the fall hatched. With these birds, the mortality was higher, the egg production less, and the size of eggs greater in the cooled house than in the non-cooled.

Results Not Consistent

In general, the results with both fall and spring-hatched birds were inconsistent. The practical value of cooling poultry houses by evaporator coolers is doubtful. The results seemed to indicate, however, that with fall-hatched birds a higher egg production can be maintained during hot weather by cooling. This is particularly true when hot spells occur in the fall, and the birds are likely to go into a prolonged molt. Factors other than temperature contributed so greatly to the mortality in these experiments that no conclusions could be drawn. It was quite noticeable, however, that during warm weather the birds in the cooled houses were more comfortable than in the non-cooled.

❡ THE SALE of pullet eggs is said to be a racket. Eggs of adult hens run from 18 to 26 ounces per dozen. That is, a dozen eggs should weigh from 1.125 to 1.620 pounds. Pullet eggs of half that weight retail at the market price of regular eggs and in restaurants at the usual menu rate, although, in terms of nourishment, they are worth (wholesale) but a "dime a dozen."
—Journal of the American Veterinary Medical Assn., March, 1941.

Diary of a Poultryman

By PERCY S. WHITE

Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

May 1—Well, I think everything is in good shape for the chicks tomorrow. As far as I can determine at present, all we have to do is to take them out of the boxes and scatter some feed on the papers. When peat moss or corn cobs are used for litter, it is more than a good policy to spread newspapers on it for a few days until the chicks learn what to eat. In fact, it is a dire necessity that the young stock learn to eat their feed instead of the litter.

The tin can oil burning brooder stoves have been fired up, and all of the crank case oil used to prevent rusting since last summer has been burned off of them. There has been much thumping, pounding and roaring on the range this afternoon. It is the sound that means tin can brooder stoves are being "het."

May 2—Just as I had expected. It never fails to be one of the worst days of spring on the day I get the chicks. Wind, rain, snow, sleet, hail—everything but the sun shining on the day they arrive. And there is nothing to do about it but to carry on. The first draft of 2,000 chicks is in the houses. Tomorrow morning there will be 500 more, 150 cockerels and 350 pullets, sexed, of course. This change in plans necessitated warming up another house. This in itself was a small matter. The chief requirement was to strike a match and then stick around to see that the house didn't burn down. It seems like old times going to bed out on the range. I have an idea that I will sleep in a brooder house tonight. Force of habit, I guess.

May 3—Only lost one chick last night and I call that pretty good for me. Walter Buss brought the other lot out at 10 o'clock, in the rain, as usual. Today has been as disagreeable as yesterday, but I am getting used to it. I get soaked going from one house to the other and dry off while inside. Wet again, dry again, wet again; that's me.

May 6—Events happened fast and furious around the ranch today. We took all the screens away from the brooder stoves, giving the chicks the entire floor. The papers which were used to cover the peat moss were removed and burned immediately. If they are not burned forthwith, they are liable to be scattered over the entire ranch by sundown.

Everybodys Poultry Magazine Pub. Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, May, 1941)

May 8—The first chicks are drinking from the 10-gallon fountains, and the remaining four houses have been equipped with the mason jar outfits. We are through with two sets, the jars and stands, and they have been washed, dried, and stored away for next year. Next spring, they will be ready for use without any ado.

This afternoon we started to heat the houses for tomorrow's chicks. The stoves are percolating hunky-dory, but they did pound and roar when first started. It usually takes a little while to get them throttled down. Thermostats always need adjusting.

May 9—There is no question in my mind but that egg quality will change from day to day, or, to be more specific, that egg quality changes with the weather. A few days ago, the weather was extremely warm. Interior quality was lowered at first, then came back. Now we are having quite cool weather and the quality is again down. I claim that if I didn't know anything about what weather conditions were, I would know there had been a change merely by candling the eggs. Furthermore, there is no question in my mind but that an egg loses quality when it lies on the side for over 24 hours. I was so tired last night that I didn't get all of the eggs packed.

May 11 — Although the air is exceptionally cool during the day and cold at night, the brooder houses stay nice and warm. I get all hot and bothered and then get chilled going to the next house. That is, all except my feet. A couple of days ago I took off my felt shoes and boots and put on leather shoes and rubbers. And the change in foot gear makes my feet so tired I can hardly stand to pack eggs for two hours after working all day.

May 12—These tin can oil brooder stoves are just about as mysterious to me as television. During the day, the houses warm up from the sun. The stoves flicker along and don't know whether to burn or not. Sometimes a high wind will cause such a draft that the flame is extinguished and, of course, they have to be relit. But when the sun goes down and the dew falls, the stoves perk up and really go to town. At present they are averaging 3 gallons of 7½-cent oil a day. As the season progresses, they will take around a gallon every 24 hours.

May 16 — Another 200 gallons of fuel oil and a truck load of feed. All of which means that the expenditures exceeded the receipts by a big margin. Fortunately, the majority doesn't happen every day. Just when I think the bank residue is beginning to increase to the point where I am going to be somewhat independent, I am out of feed and fuel, or it's tax-paying time. There is always something to take the joy out of life. But it is a great life at that, well I guess yes, even if I did burn an incinerator full of hens this morning.

May 20—In a couple of days or so Donnie White will have finished another year's schooling. Next fall he goes to high school, but this summer we will have lots of time to be together. And I hope that we will be able to get much work accomplished. It is going to be a great comfort to the Old Man to have the boy at home all of the time, for there will probably come a time when he will fly the coop.

May 22 — Another one of those days often dreamed about but seldom realized. There wasn't a dead chick or hen today. I have been going around with a banker's profile from the shoulders down. Years ago, I made it a rule to put on the dog whenever I could, for the wolf is scratching at the door much of the time.

May 23—Flash! Burnt fingers and no sleep; that is what I had last night. At midnight, I decided to see if all was well. It wasn't in No. 1, so I proceeded to light the stove. I noticed that there was an awful lot of flaky soot in the bottom. It didn't mean anything in my young life. When I started to replace the lid a flash of flames went to the ceiling. Two fingers on the left hand were burned. There was nothing out here on the range as a remedy except fuel oil and anti-pick salve, both of which make me sick if I smell them continually. I sweat it out.

May 27—Kid White doesn't like it when I come in the house smelling of distillate oil. I use a good grade of fuel oil in the brooder stoves, No. 1 distillate, but it does have an odor. It was worse today when a high wind blew about a half bucket over my clothes as I was filling the tanks. I realized the wind was blowing rather hard, but I was taken somewhat aback when a sudden gust cut in around one of the houses and a sheet of oil soused me from the shirt pocket down.

May 29 — The weather man said there would be showers this afternoon, and there were showers. Donnie and I made no effort to put the chicks in, but just let them run in and out. There is quite a difference in chick management during a gentle shower and a cloud burst. When a cloud burst hits, the chicks become bewildered, can't find the door, and are very apt to drown. When I locked in the chicks tonight, one little fellow shot out the door. We raced around the house and he finally decided to go in again. I closed the door.

Poultry Equipment Statistics for 1940

Bureau of Census News Release

POULTRY farm equipment valued at $7,488,447 was manufactured in U. S. factories last year, and factory sales of such equipment totalled $7,484,272, according to reports of manufacturers to the Bureau of the Census covering operations in 1940.

The Census Bureau annually conducts a nationwide canvass of manufacturers of farm equipment and related products which includes the makers of poultry equipment.

The manufacture of incubators was reported in terms of total egg capacity, with nine establishments making incubators of the lamp type, 1,000-egg and under, valued at $175,185 with a total capacity of 1,864,514 eggs, and 14 establishments making commercial type incubators, over 1,000-egg capacity, valued at $2,554,079, and a total capacity of 30,136,899 eggs. These manufacturers reported the sale of $2,552,055 worth of commercial type incubators with a total egg capacity of 30,007,664 during last year: for use in U S., $2,492,923 worth with a total of 29,292,970 egg-capacity; and for export, $59,132 worth with a total of 714,694 egg-capacity.

Export sales figures for other kinds of poultry farm equipment are not revealed in the report, a notation stating "cannot be shown without disclosing the operations of individual establishments."

Manufacture of Selected Items of Poultry Equipment, 1940

Kind	No. of Mfrs.	No. of Units	Factory Value
Brooders:			
Floor:			
Oil	20	119,269	$955,507
Coal	10	33,089	362,694
Gas	13	4,251	42,203
Electric	28	91,719	839,286
Battery:			
3-deck	8	2,260	40,542
4-deck	15	736	52,217
5-deck	14	6,761	525,718
Growing Batteries	15	7,772	251,008
Laying Batteries	11	7,378	100,055
Poultry Feeders	41	2,645,326	783,068
Poultry Waterers	42	3,472,722	806,885

KANSAS 4-H Club members did a million dollar business in 1940, says the U. S. Egg and Poultry Magazine. They produced $1,091,752 worth of goods. About a quarter of a million fowls owned by members brought a profit of $54,728.

Culling Made the Difference

By J. C. NEALE

Condensed from Checkerboard News

WE HAVE all heard the saying that "any old feather duster will lay in the spring." Unfortunately, a lot of folks have taken it to mean what it said, and have suffered a loss because they did.

It's only partly true. It is true enough that spring is the season of the year when Nature intended a hen to lay eggs and hatch out her young. If she has not been laying during the winter months, it is probable that she will begin to lay as the weather gets warm, and may continue to lay for several months. That's probably why, over the country as a whole, we have always had our biggest total egg production during the spring and early summer. A lot of hens from poorly-cared-for flocks come bursting into production at that season, along with the good birds from the well-tended flocks that have been laying all winter.

Short Time Producers

But in the well-managed flocks that have been laying since early fall, it's a different story. The good birds in such flocks keep right on laying, but there are a lot of "short time producers" in most of those flocks that have just about reached the end of their tether.

There are only a few top-notch strains, in any breed, that are giving us anywhere near 100 per cent pullets with enough vigor and stamina and "stick-to-it-iveness" to keep on laying for 12 straight months. Most strains will give us some pullets that will keep on laying all year through, but except in rare instances we will find that anywhere from a fourth to half of our pullets will slow down, or perhaps stop altogether, after 5 or 6 months of heavy laying.

Sometimes it is difficult to believe that a lot of birds have quit laying, even after the daily gathering begins to dwindle. It looks as though the whole flock had just eased down to a slower pace. None of the birds seem to be out-and-out loafers as you look them over while feeding or gathering the eggs.

Perhaps this may be so, as they drop down from 60 per cent, to 50 per cent, but after they get below 50 per cent, it pays to look them over rather carefully. Here's an actual example that the writer ran across one day last summer.

A chap had just culled his flock from 1,032 birds down to 810. And this is what he had found:

On the day before he culled them, he got 450 eggs from the flock of 1,032 birds. On the day after culling, he gathered 414 eggs from the 810 birds that were left. The next day, he got 420 eggs from his 810 birds. He kept his 222 culls for a full day, before shipping them, and they laid exactly 4 eggs that day.

The 222 birds that he culled out –which was, roughly, one bird out of every five – were pretty good looking hens, as you looked at them on the floor. Some of them, of course, were obviously out of production, but there were only a comparatively few that you would point out quickly and say, "That's a loafer." But when they were caught and examined closely, they were found to be either dry in the vent, too yellow in the legs, too narrow between the pin bones, or otherwise indicating a lack of heavy egg laying.

Eat Their Heads Off

Let's do a little figuring on feed cost. When this man was feeding his 1,032 hens, they were probably averaging around 6½ lbs. of feed per bird per month. The non-layers would not have been eating as heavily as the layers. But at 6½ lbs. per bird, his monthly feed consumption would have been 6,708 lbs.

After the culls were removed, feed consumption probably increased to around 7 lbs. per bird per month because they were all workers. But he had only 810 mouths to feed, and he could keep them satisfied with a total of 5,670 lbs. of feed per month. A saving of 1,038 lbs. of feed per month. More than half a ton. And there was very little reduction in the number of eggs produced.

At this season, when egg prices are around the low point for the year, every poultryman is trying to produce eggs at a low feed cost per dozen. But the fellow who tries to do it by cutting down on the quality of his laying mash, or by feeding grain alone, is simply butting his head against a stone wall.

There is only one way to make a profit during the low price spring and summer months. That is to cull the loafers and keep on feeding the layers the same way you feed them during the fall. Several cullings may be necessary during the season. Whenever production drops below 50 per cent, it is time to act.

Copyrighted, 1941, Ralston Purina Co., Checkerboard Square, St. Louis, Mo.
(Checkerboard News, April-May, 1941)

WHEN turkey poults being brooded by Mrs. J. W. Tanner came down from their roosts after she left the houses in the evening, the ingenious Kansas farm woman hung an old dress in the brooder house. Poults now get on the perches and stay there, says Cappers Farmer.

What is Ahead in Reporting Egg Prices?

By L. M. DAVIS
Agricultural Marketing Service

Reprinted from Marketing Activities

JOHN JONES operates a large poultry farm about 150 miles from Chicago. He sells a few eggs to motorists who stop at the farm, but most of his production is sold to a shipper over at the county seat. Jones follows the wholesale quotations in the city newspaper—follows them religiously – but they bear little resemblance to the prices paid by the local shipper.

What Jones would like to have is a report that shows prices paid for the kind of eggs he sells, and it would be of even greater value to him if actual buying prices were reported for his local area. He believes that such a report would help him to check the prices he receives. And it might help him to locate a better market outlet.

Wholesale Price Unsatisfactory

Jones finds wholesale market prices a rather unsatisfactory type of information, not because he fails to understand what they mean, but because they apply to a different type of transaction than he is concerned with; because they include certain service charges and margins; and because they are for market grades that are not used in the purchase of his eggs.

Actually, Jones' problem is one that a market news service agency must solve if it is to issue adequate reports on egg markets. With improved transportation and refrigeration facilities, and resultant changes in marketing and merchandising practices, the service agency must decide what type of price report is of the most value to the industry. Can a service be provided that will be of greater use to Farmer Jones than the present service? If so, would such a service meet the needs of other branches of the industry?

A Complex Problem

The problem is complex, for there are several stages in the marketing of eggs at which prices can be reported. When Jones sells to the shipper at the county seat, he receives a "shipping point price." If he were to ship direct to a wholesaler in the city market, he would be paid a price "f.o.b. terminal market." If his eggs are sold in quantity by the wholesale receiver to a jobber, the sale is at the "wholesale price"–the price that is most frequently referred to as the "market." If they are packed in cartons and sold in small lots to the man who operates the corner grocery, the grocer pays the "jobbing price." Finally, when Mrs. Green drops in at the store on Saturday and buys a single carton of one dozen eggs, she pays the "retail price."

U. S. Department of Agriculture. Agricultural Marketing Service
(Marketing Activities, April, 1941)

A market news report based on the retail price is obviously not of much use to John Jones, so far as his individual marketing operations are concerned. Such a price is four steps removed from the first sale and includes various costs for handling and transportation. Then, too, retail prices show sharp differences, depending on brands, type of retail store, location, and merchandising policies of individual retailers. The jobbing price, which is three steps removed from the first sale, is little better from Jones' standpoint. And even though the wholesale price is more usable, he finds that, for his immediate purpose, it has its weaknesses.

Up to the present time, much of the effort in reporting egg prices has centered in the wholesale price. One reason for this lies in the fact that the wholesale market has been a sort of bottleneck through which the heaviest volume flows. Here the market reporter has been able to gather information quickly and easily, and with a fair degree of accuracy.

Wholesale prices, then, have represented a type of information that was more or less readily available from a relatively few reliable sources. Furthermore, wholesale prices have measured price-quality relationships better, perhaps, than any other point in the marketing process under existing practices. This was more particularly true in the days when it was the general custom of shippers to send their products to a wholesale center, and to rely on the wholesaler for distribution of the product.

Increase in Direct Marketing

Regardless of what conditions may have been in the past, the situation is different today than it was 20, 15, or even 10 years ago. One marked change is that "direct marketing" has come into the picture.

A considerable volume of business that formerly moved through wholesale markets is now diverted direct to stores, restaurants, and hotels, and thus does not move through the wholesaler's hands. In some instances, producers have become organized and cooperative organizations have begun to distribute their eggs through their own market agencies. The most profitable outlets have been sought, as well as the most efficient marketing methods.

Wholesale Volume Declining

As a result of these changes, the volume of business now available as a basis for reporting wholesale market prices is declining. So there is danger that, with a declining volume, wholesale prices may eventually become nothing more than an expression of nominal values. If this is true, why does the industry still cling to wholesale price quotations? The answer belongs to the realm of psychology: Trade practices are built around such quotations and buyers and sellers are reluctant to change. Custom and habit are powerful forces in the market place.

Noting the trend, however, the Agricultural Marketing Service has been studying alternate types of price information that might be developed in the light of changing conditions. The conclusion has been reached that, in many markets, a report based on prices a little closer to the producer would not only be more useful to that branch of the industry than the wholesale price quotations, but that such information would be of general interest and value. A logical point of approach, from a practical standpoint, seems to be the f.o.b. terminal market price.

Advantages of New Reports

One of the principal advantages of f.o.b. terminal market price reports is that such prices represent the value of a shipper's product close to the point where he sells it. Of course, this type of information does not indicate to every producer the exact price he should receive, for transportation costs must be taken into account. Many producers, like John Jones, are not shippers; they sell to local buyers or to hucksters who stop at the farm.

Nevertheless, it appears much simpler for producers to interpret f.o.b. terminal market prices than to interpret wholesale, jobbing, or retail prices that include dealers' spreads and transportation costs. If a producer receives a flat price for eggs shipped to a market where prices reported are for local wholesale grades it becomes even more difficult for the producer to interpret them. Matters are simplified somewhat if he sells on the basis of grade.

F.O.B. Prices Not Always Possible

Some eggs that reach the market, for one reason or another, do not lend themselves to use in reporting f.o.b. prices. For example, no f.o.b. price information is available when eggs are handled in a terminal market by a cooperative association that pools returns, or that ships eggs to its own distributing agency on a memorandum billing. The "selling" of goods by an organization to itself can hardly be recognized as a basis for reporting market prices.

A somewhat similar situation applies in the case of inter-market movements of eggs between branches of individual concerns. Eggs that are bought at prices and under conditions that apply at shipping points, and not at terminal markets, represent another type of transaction whereby it is impossible to obtain f.o.b. market price information. It is true that the country price plus transportation gives an f.o.b terminal market price, but technically that is not the price paid f.o.b. terminal market. Goods consigned to a market for sale on a commission basis are also out of the picture, insofar as reporting f.o.b. prices is concerned.

Delivered Prices Now Reported

Regardless of the foregoing difficulties, which are typical of reporting any type of market prices, relatively large quantities of products reaching terminal markets are bought at a delivered price. Such transactions afford a workable basis for reporting f.o.b. prices.

Furnishing shippers with information as to the value of the eggs they are selling at the point where sold is about as close an approach to measuring price-quality relationships as can be undertaken with the system of marketing being what it is. If the eggs are sold on an official grade basis, that is still better. The Agricultural Marketing Service is already reporting f.o.b. terminal market prices at Boston, Washington, Baltimore, Denver, Seattle, Portland, Oreg., San Francisco, and Los Angeles.

Assuming that f.o.b. terminal market price reports come closer to meeting the needs of the country shipper than other types of market price information, can anything further be done for the individual producer in the country? What John Jones wants most of all is a market report that shows prices paid producers for eggs in his part of the State. Can anything be done for him? Yes, under some conditions.

Country Point Reports

A new type of market news information inaugurated in Virginia in 1939 is a report showing receipts, gradings, and prices paid at country grading stations for eggs bought on the basis of U. S. grades. The new service has been developed in connection with the egg grading program that has been in operation in Virginia for a number of years under a Federal-State cooperative agreement.

In setting up this service, the State of Virginia has been divided into several marketing areas that are more or less distinct from a geographic standpoint. Though prices paid in all areas are largely influenced by prices at Washington, D. C., where most of the eggs are sold, prices vary according to location and competitive conditions. Local buyers operate independently, and prices paid producers for eggs of the several grades depend to a certain extent upon buyers' individual ideas of supply, demand, and upon their market outlets.

The reports, as summarized for release, show prices by grades in each area, and combined receipts and gradings for all areas, including a breakdown according to color. The establishment of such a price reporting system on a Nation-wide basis, however, must wait until the complex problems of cooperation, grading, and industry acceptance are solved. In the meantime, f.o.b. terminal market price reports will be developed as far as practicable.

Faults in F.O.B. Price Information

It should not be assumed from what has been said that f.o.b. price information is exactly suitable for every market. In studying the type of price information that is best suited to an individual market, it is important that the needs of both producers and distributors, as well as the various uses that are made of market information, be taken into consideration. Even after this is done, certain inevitable limitations are likely to be encountered in setting up a service. The type of service depends not only upon what should be done, but upon what can be done under existing conditions.

Reporting on Graded Price Basis

For example, there is ample argument for reporting prices on the basis of recognized official grades; but this does not preclude the fact that it is impossible to report on this basis if such grades are not followed in buying and selling operations, or if trading is conducted on the basis of a loose system of commercial grades or no grades at all.

Any type of service depends upon industry cooperation, for the market news service is conducted on a voluntary basis. If dealers as a whole do not cooperate, there can be no market news reports. Relatively few dealers have this attitude and where such is the case, it is usually due to fear of divulging information that would work to the advantage of competitors. While this danger is probably over-emphasized in the minds of the few who hold to such an idea, it is nevertheless a hurdle that the market reporter must clear before he can do his job adequately.

◄◄ A ROOSTER with his legs tied together was responsible for an auto accident, says a copyrighted story released through the United Press. A man bought the rooster, tied its legs together, and tossed it on the shelf behind the seat in a coupe. On the way home, the rooster freed itself, beat the driver around the neck and face in efforts to get out of the car, causing the unfortunate owner to lose control of the auto, which ran through a guard rail and down an embankment.

Hatching Dates and Seasonal Production

By F. P. JEFFREY
New Jersey College of Agriculture

Condensed from New Jersey Agriculture

IN SPITE of advances made in poultry husbandry, the production of eggs is still highly seasonal in character. The U. S. Department of Agriculture estimates that over 50 per cent of the annual egg production in this country is in the months of March, April, May and June. If it were not for the fact that eggs can now be stored satisfactorily, either in frozen or shell form, the spread between the price of fall and spring eggs would be more extreme than it is.

Approaches to Problem

It is logical, therefore, that agricultural experiment stations and poultrymen alike have tried to devise methods of increasing fall egg production to take advantage of higher egg prices which prevail at that time. There are several possible approaches to this problem, as follows:

1. **Disease prevention,** either through the greater utilization of disease control programs which have proved effective, or by breeder selection for a lower mortality. If laying house mortality is held at a level not exceeding 10 per cent, more birds (if spring hatched) will be available at the end of the laying year to produce eggs for the fall market.

2. **Breeder selection** for high persistency in laying. Since it is known that such persistency is an inherited character, it should be possible to secure better fall egg production from spring-hatched pullets if they have been selected for their ability to lay late in the fall before starting their annual molt. Work done by the Massachusetts Experiment Station, as well as by several private breeders, has demonstrated the desirability of this approach.

3. **Increase fall egg production** by hatching outside the usually accepted "normal" season of February to May, inclusive.

Theoretically, it might appear that by hatching every month or every other month throughout the year a uniform monthly egg production would result. That such is not the case, however, was demonstrated experimentally almost 20 years ago. The main reason why such a program does not result in a uniform monthly production is that birds tend to molt during the fall

N. J. College of Agriculture, Rutgers University, New Brunswick, N. J.
(New Jersey Agriculture, January-February, 1941)

months and lay most heavily during the spring months, regardless of date of hatch.

Recent studies conducted at this station show that April-hatched pullets produced 173 eggs per bird, as compared with production of 166, 148, 146, and 142 eggs per bird when hatched in June, January, November, and September, respectively. Revenue from egg sales during the fall months, when calculated on the basis of number of pullets at the start of the laying year, was no higher from the fall hatched pullets than from the spring hatched pullets.

Winter Birds Expensive

In addition, it was found that November and January hatched pullets cost almost thirty cents more per bird to rear than pullets hatched in June.

Cold weather brooding, which follows with November and January hatching, proved to be much more hazardous than warm weather brooding because with the former there is always the possibility of heavy loss through accident to the brooding equipment. Likewise, chick losses resulting from infection with any of the common respiratory diseases are greater, on the average, with chicks brooded during the cold months.

Somewhat contrary to past observations and present recommendations, it was observed that June-hatched chicks could be raised with a minimum of trouble and cash cost. June-hatched pullets also gave satisfactory egg production and laid unusually large eggs during their last few months of production, or during the period when large eggs bring a premium on the market. With a strain bred for high persistency in laying, the possibilities of good profit from June-hatched pullets would be still further increased.

It appears to the writer that the best long-time approach to the problem of getting better fall egg production lies in the fields of breeding and disease control. Aside from the desirability of relatively more late hatching (May and June), it does not seem that manipulation of hatching date will offer a real solution to this problem.

WISCONSIN country stores report that they get frequent winter egg deliveries from many farms because high school youngsters bring in the eggs when they drive to school. The same storekeepers complain about the difficulty of getting deliveries after school closes, however, says the U. S. Egg and Poultry Magazine.

GRASSHOPPERS started to damage potato vines on the farm of Elmer J. Bird, Kansas, so he moved a chick range shelter, feeders, and waterers into the field. The pullets ate the hoppers, but didn't damage the potato crop, says Capper's Farmer.

POULTRY RESEARCH

Drugs for Infectious Coryza

Neither azamine, a complex dye-type chemical of low toxicity, or sulfanilamide, showed evidence of benefit in treating infectious coryza, report University of California veterinarians in Nulaid News, February, 1941.

Breeding Out Bare Backs

"Bare-backs" at broiler age have been eliminated from a strain of White and of Barred Plymouth Rock chicks. This improvement, transmissible to successive generations, has been attained by selective breeding, based upon genetical planning. Similarly, the factor for early feathering was established. (Oklahoma Biennial Report, 1939-40).

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Lymphomatosis in Most Diagnoses

In the University of California diagnosis service, the trouble found in 64 per cent of the chickens was lymphomatosis (paralysis, big liver, gray eye) or infectious or parasitic diseases, says Nulaid News, February, 1941. In grown chickens, lymphomatosis was found most often, with infectious coryza a close second. Pullorum disease was indentified in more than half the chick specimens examined.

Turkey Disease Studies

Turkeys that have survived an outbreak of infectious catarrhal enteritis have proved to be the most important carriers and means of transmission to susceptible poults, report University of California veterinarians in Nulaid News, February, 1941. Quail and chukars were also found to carry a species of Hexamita transmissable to turkeys.

Domestic birds examined and found negative for the parasite are chickens, ducks, guinea fowl, pheasants, pea fowl, jungle fowl, grouse, blackbirds, sparrows, linnets, crows, hawks, and owls. Pigeons were found to carry a species of Hexamita not transmissable to turkey poults.

Inorganic Elements in Poultry Nutrition

Finely divided bonemeal, as such, or as it occurs in meat scraps, appeared to cause slightly less perosis than coarsely ground bone in experiments at the Colorado Experiment Station, according to that Station's

Fifty-Third Annual Report.

Manganese absorbed on bonemeal was no more readily utilized than that added separately. Meat scrap caused slightly more perosis than fish meal. Manganese phosphate was as effective as the sulphate.

No Increased Growth with Pectin Compounds

The addition of 10 per cent of nickel pectinate or 10 per cent of pure pectin to the University of Delaware starting and growing ration for Barred Rock chicks did not increase the rate of growth, according to A. E. Tomhave and G. L. Baker, reporting in the 1940 Annual Report of the University of Delaware Agricultural Experiment Station.

Growth was greatly reduced in both lots; both nickel pectinate and pure pectin gummed up the beaks of the birds, produced sticky droppings, and tended to paste up the rear of the chicks; and mortality in the nickel pectinate lot was 4 times as great as in the control lot. Mortality in the pure pectin lot was not abnormal.

Effect of Diet on Chicken Meat Flavor

A committee of nine judges could detect no appreciable differences in aroma, flavor, juiciness, or tenderness of either the light or dark meat of fryers or roasters receiving either corn, wheat, or barley in the growing and finishing rations, according to a report on studies made by W. E. Poley, Amanda Rosenquist, and A. L. Moxon of the South Dakota Agricultural Experiment Station, which appeared in the Journal of Agricultural Research (Vol. 61, No. 3).

There were no significant differences between the dressing and cooking percentages of the fryers and roasters receiving the different grains as principal constituents of the ration.

Proso Millet for Poultry

Proso millet (either red or white) was found to have approximately 95 to 100 per cent the feeding value of corn in starting, growing, and laying rations tested with chickens at the South Dakota State College Agricultural Experiment Station, according to S. D. Bulletin 337. Comparative values of the grain were based upon rate of growth, feed utilization, and egg production.

In starting and growing rations, the best growth and feed utilization occurred when approximately equal amounts of proso millet and either oats, barley, corn, or wheat were fed.

Ground proso millet may be fed in laying rations to equal 43 per cent of the mash, and 100 per cent of the scratch ration. Because of its small size, proso millet grain may be added to the laying mash unground. When this was done, about 9 per cent more feed was required to produce a dozen eggs. Neither egg production nor hatchability was improved by increasing the amount of alfalfa leaf meal or meat and bone scraps included in the basal mash.

Vitamin G Requirements of Turkey Breeders

Turkey breeding rations should contain as much vitamin G as chicken breeding rations, if not slightly more, according to the Colorado Experiment Station Fifty-Third Annual Report. The critical point approximates 225 units of vitamin G per 100 grams of ration, or slightly more than that. The percentage hatch of fertile eggs declined in direct proportion to smaller amounts, and increased only slightly on larger amounts.

Breeders confined to indoor pens allowing about 4 square feet of floor space per bird produced a few more eggs per birds than those allowed sheds opening on the south into outdoor yards. Fertility, however, was slightly better in the outdoor pens, so that the total number of poults produced per bird under the two conditions was about the same.

Artificial Light Studies

Artificial lights used on White Leghorns produced favorable results from the standpoint of total egg production, egg weights, and the average price per dozen for eggs, in a trial conducted by A. E. Tomhave, says the University of Delaware Agricultural Experiment Station 1940 Annual Report.

Hens in lighted pens averaged 45 per cent production for the four months February through May, against 39 per cent production in the unlighted pens. Lighted pens had 39 per cent of the eggs over 23 ounces and averaged 23.2 cents in price, while eggs laid in unlighted pens sold for 21.9 cents, with only 38 per cent weighing more than 23 ounces per dozen.

Artificial lights definitely aided in maintaining larger egg size during the months of May, June, and July, when egg size usually decreases, says the report.

Pasture for Poultry

The value of pasturing poultry has been examined from the standpoint of food value and nutritional requirements by Dr. L. Weinmiller at the Bavarian Poultry Institute, Erding, Germany. It is impossible within the space available to give a complete review of all of the findings from this 10-year test, but the recommendations for the practical application of the results obtained embrace a few gems well worth mentioning.

On range which supplies no feed or grains, the birds require more feed than is generally suspected to meet their energy requirements.

Wheat stubble, immediately after harvesting, cut down the feed to be supplied "out of the bin" by as much as ¾ to 4/5 of the total feed intake.

Good barley or oats stubble saved, at best, only one-third of the total feed consumption, as compared with one-tenth to one-quarter for real good, grass pasture, not overpopulated.

It is difficult to translate these results into values which would apply under American conditions, because in Germany labor is cheap, but land and grains expensive, comparatively speaking. The conclusion is also drawn that the food value of the manure pile is usually overestimated. On bare yards, flocks which had access to the manure pile required more feed and produced less than flocks which were kept in confinement without any yards. (Archiv fuer Kleintierzucht, Vol. 1, Nos. 1 & 2).

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Feathers for Fertilizer

In an effort to turn a liability into an asset, several Oregon cooperative turkey killing and dressing plants asked a branch experiment station to see if the feathers couldn't be used as fertilizer.

According to a copyrighted article by John C. Burtner appearing in Country Gentleman for May, 1941, there were striking results in response to the application of 10 tons of wet feathers per acre. An untreated plot yielded at the rate of 8½ tons of green corn fodder and 2.91 tons of corn per acre, while a treated plot averaged 11.61 tons of fodder and 4.8 tons of corn per acre.

The feathers, applied in January, were almost completely rotted by August. With the test indicating that the treated plot was overfertilized, H. K. Dean, who conducted the test, believes that 2 tons of wet feathers per acre will give maximum results.

❡❡ J. HUNT CROWLEY, John Bull's food expert, states: "The housewife must visualise that next winter there will probably be but one egg per fortnight per ration book." Well, that will be like anticipating a Christmas thrill twice a month. Won't the kiddies just learn to love Egg Day!

—Eggs, London, England, April 2, 1941.

Poultry Farming—A Business Venture

The man who has elected poultry keeping has his vocation all cut out for him and packed loosely in a challenge-box. For some unfathomable reason, most people have the erroneous conviction that the poultry vocation puzzle is easy to solve, whereas those of all other trades, businesses and professions are extremely complicated. All we need to do is to look about to see the fallacy of this inherited and self-assumed silliness. No higher percentage of folks succeed in attempted commercial poultry enterprises than in other walks of life. The chances are that the number is actually less, because specified training is required in the professions, apprenticeship in the trades, and experience in businesses. "Chicken fever" is often foolishly considered to be the only prerequisite training necessary for entry into the complex poultry field.

The poultryman's puzzle is cut into a different pattern but it has just as many pieces that are as difficult to put together as are the puzzles of those in other technical walks of life. The cold-blooded reason for the similarities of all puzzles lies in the bare fact that any business is a business, and must be conducted according to the fundamental information and foundation principles of that business.

He who plans to engage in the poultry business can fortify himself with the information that he is entering a phase of agriculture which is economically sound. Whether or not he succeeds depends upon himself, his cunning in distinguishing between the advice of all versus counsel of the few, and upon his willingness to unlearn as well as to learn. The industry can give or guarantee nothing beyond opportunity.

When all is said and done, poultry farming is a business, a marginal business, a business of interlocking details, a scientific business and a successful business only when conducted on business principles by men of business ability.

—H. E. Cosby, Eggsaminer.

❡❡ EASTERN housewives don't like the "just laid" flavor of farm-processed eggs coming from the Pacific Coast, according to the story Earl Benjamin told the annual meeting of the Washington State Co-operative Egg and Poultry Association. Eastern city people are used to a week-old flavor in eggs, he said, and look upon the oil-dipped westerns as "too fresh."

—Farm Journal, May, 1941.

VIEWS OF THE EDITORS

More Broilers

The Delaware-Maryland shore country is enlarging broiler capacity by 2 million. This is a reflection of improved consumer buying power combined with an expanding taste for this succulent meat. Consumers who get half a broiler on their plate don't get half veal. There appears to be no spread in prices on fresh broilers between the West and the East, as is the case with fresh eggs. In April, when broilers were quoted at 23 to 24 cents a lb., wholesale, at New York City, they were quoted 23½ cents a lb., wholesale, at Chicago. The demand for broiler chicks has been good. One poultry buyer in New York State, recently stated that "farmers can't get cross-bred chicks, the demand is so great."

—Frank L. Platt, American Poultry Journal, May, 1941.

Pessimism on Turkeys

One of our readers, active in the management of a large turkey growers' association, expresses a very pessimistic attitude toward the 1941 turkey marketing situation.

"Every man, woman, and child in the United States will have to eat four turkey dinners during the year to consume the year's crop," he writes. "Turkey prices are cheap and unsatisfactory to the grower, and the volume of turkeys produced has increased 100 per cent in the last 10 years."

It is not certain that the story is as disheartening as it sounds. It is true that there has been a tremendous expansion in turkey production, and it is equally true that demand for turkey meat needs to be developed if the increased production is to be marketed profitably. The thing to do with any problem, however, is to work out a satisfactory solution. No one gets very far by always taking the easiest road. In the case of turkeys, more progress than many seem to realize has been made in developing demand. Many restaurants and hotels now feature turkey on their menus the year around—an unheard of thing a few years ago.

In homes, the effort to get the turkey out of the "holiday treat" category has not been so successful, but many reasons for this failure are apparent. There has been no concerted sales drive directed to the housewife, for one thing. In the second place, little has been done to make it possible for housewives to serve turkey at small family meals without waste. There is simply too much of the bird. The average family doesn't often buy a leg of lamb, or a large rib roast, for the same reason. Most of us like to vary our meats from meal to meal.

Experimenters are working, with considerable success, on the problem of developing smaller, yet well fleshed, birds. We suspect that some day this type of turkey will be the standard. There also are some progressive meat shops that are offering turkey parts, instead of the whole fowl. A shopper can buy all the drumsticks, or breasts, or wings, or even necks, required for her family without taking the rest of the meat. The difficulty there, of course, is that the desirable portions sell for high prices, and the meat cannot be cooked in the same way.

It seems possible that diligent application will at some future time result in reaching the goal of year around demand for turkeys. We are not inclined to agree with those who believe that the solution lies in restricting production to some arbitrary level. Economical, rather than restricted, production, and a planned effort to build up consumption, should be the goal.

We have heard a lot of blame placed on commercial feed companies for expanding turkey production through their large scale turkey feed financing. It probably is true that in some years and, in numerous instances in any year, this has been overdone, yet we would not condemn the practice. The average mature turkey consumes from 60 to 70 lbs. of feed during its life, and a feed company that can use a financing service intelligently can build up a large and profitable volume of business in turkey feeds. At the same time, such financing has enabled many farmers to become successful growers that otherwise could not have entered the business. Their incomes have been improved, their outlook on life brightened and business in their local communities stimulated.

Turkey production cannot be held for the special advantage of a relatively few growers. Increased demand, and the production of quality turkey at lower cost, will give the best chance for future profit.

—Feedstuffs, March 22, 1941.

A Notable Victory

Highly gratifying from the standpoint of every segment of the businesses of producing, processing and merchandising poultry, eggs, and their products is the recent decision favorable to the government in the case of David L. Moss and Co. vs. United States, involving claim for refund of duty paid on dried egg albumen. Final opinion denying the application of the plaintiff was handed down on January 6. Because allowance by the Court of the Moss protest in the action would have had the effect of reducing the tariff on imports of dried egg albumen, and because of the vital interest of the poultry and egg industries in opposing such eventuality, we deem it important once more to trace the progress of the case:

To summarize, dried egg albumen imported from China was classified for duty under paragraph 713 of the Tariff Act of 1930 and assessed thereunder at 27 cents per pound, the amended rate provided by a Presidential Proclamation published in T.D. 44997.

By protest, the importer, Moss, claimed that his merchandise was not "dried egg albumen" as that term was used in paragraph 713; that in the process of drying, certain physical and chemical changes had taken place which completely changed the original status of the merchandise and made it a manufacture of egg albumen. Since there was no specific provision for such material, the importer claimed it was dutiable at 20 per centum under paragraph 1558 of the Tariff Act as an unenumerated manufactured article.

The United States met this testimony with evidence of a scientific nature furnished by domestic producers of dried egg albumen showing that every process of drying involved fermentation and other changes to a degree, and that the differences between the various processes were differences in degree.

The Customs Court reviewed this evidence and found that there were numerous patents on drying egg albumen, indicating various methods by which specifically the same result was accomplished. It noted the differences which had been emphasized by plaintiff's witnesses, but observed that even these men had admitted on cross-examination that all of the various products were known and sold as dried egg albumen.

It is believed in most quarters a virtual certainty that because of its financial importance, the case will be appealed to the Court of Customs and Patent Appeals.

—American Egg and Poultry Review.

Feeding for Profits

"Profitable feeding is not always a matter of producing a dozen eggs, or a gallon of milk, at the lowest feed cost. In fact, the fellow who produces these things at the lowest cost may be the first one to go broke." These are not our words, but the words of an alert-minded farmer with whom we recently talked. At first hearing they sound contradictory, but no truer statement was ever uttered.

Take eggs. By cutting down on quantity and quality of laying ration, and letting the hens rustle most of their feed, a poultryman might produce summer eggs at a feed cost of 5 or 6 cents a dozen. But he would get so few dozens that his profit would be cut to almost nothing. He would make more money by feeding a ration that kept

his hens laying at a 50 per cent clip or better, even though it raised his feed cost per dozen to 9 or 10 cents. Less profit per dozen but more dozens to sell.

The same thing applies to raising pullets. The fellow who raises his pullets to maturity at the lowest feed cost per bird will no doubt produce eggs at the lowest cost per dozen in the fall. But he won't gather enough dozens to pile up much profit.

These are extremes, of course, and it is entirely possible to go to extremes the other way and spend so much money to get high production that there still is little profit in the business. The fellows who make the most money are the ones who strike the happy medium.

As we look around at the men who are striking this happy medium, and who are making the most money, we are impressed by one observation. Practically all of them are men who follow a conservative but consistent plan of balanced feeding throughout the entire twelve months of the year. They don't feed a balanced poultry ration for three months in the fall, and then go back to haphazard feeding for the other nine. They don't feed a balanced dairy ration to winter milkers, and then rely on pasture, hay and silage to nourish their summer milkers and re-build their dry cows. They feed a balanced ration to every animal or bird on the place—before it's born, during its growing period, and during its entire productive life.

—Checkerboard News, April-May, 1941.

Eggs as the Piece de Resistance

If someone can convince 95 per cent of the housewives that it is just as economical to use a dozen eggs at one meal as it is to use a pound and a half of other food, the egg man's worries will fade away. Habits carry through several generations of human beings. There was a day of egg scarcity—when one or two eggs were a luxury several months each year. Granddaughter has inherited ideas developed two generations ago as a fixed habit. The industry has a real job of convincing. In the meantime, the old hen shows she is a great producer of human food, and her capacity for production appears to exceed present demand.

—Nulaid News.

¶ WITHIN the confines of an area 65 miles wide by 125 miles long in Eastern Kansas and Western Missouri, there are facilities for breaking and freezing 25 carloads—400 cases each—of eggs daily, says the Missouri Ruralist. Over a season of 15 weeks, this would total more than 140 million pounds of egg meats, or about 70 per cent of the volume produced in the United States.

Grass Silage for Poultry

Reprinted from New Jersey Farm and Garden

SOMETHING entirely new happened in poultry management a few years ago when County Agent F. A. Raymaley, of Cumberland County, N. J., and Gus Walters, poultryman of Vineland, N. J., mapped out a plan for the use of grass silage in the feeding program. Though there were no experimental data to guide them as far as poultry were concerned, these men observed the excellent results from the feeding of grass silage to dairy cattle, and reasoned that the feed should do just as well for poultry.

Mr. Walters took the role of pioneer and tried grass silage with his flock. The practice has spread so that there are scores of New Jersey poultrymen who are successfully making grass silage a part of their feeding system.

Now in his third winter of feeding grass silage, Mr. Walters reports a few changes, based on his experience.

Where he once preferred Kentucky blue grass as the source of raw material, Mr. Walters now sees a greater advantage in the use of a blue grass-white clover mixture.

He suggests more frequent cutting of grass — mowing once a week so that only young shoots less than 2 inches long are harvested, thus affording greater palatability.

After packing the silage in barrels, Mr. Walters now replaces the original covers, supplementing with two layers of roofing paper as added insurance that the barrels will be as nearly moisture and air tight as possible.

Maintaining Light Yolks

Mr. Walters has standardized his feeding so that his White Leghorn laying hens get 2 to 2½ pounds of grass silage to 100 pounds of feed, and finds that this rate has no effect on yolk color, pointing out that he hasn't had a single case of eggs grade out of "Fancy" in the past year. (The Missouri Agricultural Experiment Station has reported that the color of yolk is affected slightly when as much as 4 pounds of grass silage per hundred is fed to layers.) Mr. Walters indicated that heavy feeding of oats is an added factor in maintaining light yolk color.

Although many poultrymen feed grass silage on top of mash, Mr. Walters continues to feed it directly in pans. Because the silage in the bottom of the barrel carries much more moisture than that in the upper part of the barrel, however, he plans to feed the more moist portion on top of mash.

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(New Jersey Farm and Garden, February, 1941)

Even though grass silage carries its share of vitamin G, Mr. Walters complements the silage with dried milk and liver meal in the ration of breeding birds, so that hatchability will be doubly assured.

From the farm of the Taylor Brothers, of Newtown, Pa., comes one of the most interesting of the experiences which are determining the place of grass silage in poultry management. Operators of one of the leading hatcheries in Pennsylvania, the Taylors last summer put up 30 barrels of molasses-grass silage.

When one of their flocks "went to pieces" last October they sought some method of recovery. They decided to try some of the silage, and within three weeks the birds were back in 74 per cent production. This was "the convincer," so the Taylors this year are putting up a small silo for poultry ensilage.

How Bergman Does It

A different form of management in the production of poultry ensilage is being followed on the farm of John Bergman, of Bridgeton, N. J., who last season put up more than 100 barrels of alfalfa-molasses silage. Part of the silage is going to a flock of more than 600 Barred Rock capons. They are a uniform-looking lot of birds, with deep yellow shanks vouching for their "clean bill of health."

Mr. Bergman cuts the alfalfa for silage just before it comes into bloom. It then is run through a chopper and molasses is incorporated with it as it goes into the barrels. Barrels are sunk into the ground so that the tops of the barrels are level with the surface. When a barrel is filled, it is tamped and 6 inches of earth packed on top as a seal, leaving the silage so well preserved that some which has been held over from two years ago still is in excellent shape.

Mr. Bergman tried something new last fall when he mixed in a half basket of cull tomatoes in each of several barrels. When this silage was observed in mid-January, the tomatoes were well-preserved, had bright color, and were the first choice of the capons when the silage was fed to them.

Another angle on the feeding of grass silage is presented by Prof. C. S. Platt, of the New Jersey Experiment Station, who says:

"A great deal of the value of grass silage will be in its vitamin G content. And you cannot get good growth in chicks unless there is a high vitamin G content in the ration."

Vitamin G, Prof. Platt also declared, is 99 per cent of the reason why an egg will or will not hatch.

Incompleteness of research in the nutritional aspects of the use of grass silage is one of the big question marks yet remaining in this feeding practice, according to Mr. Raymaley. He points out, however, that Biochemists Taylor and Russell, of the New Jersey Experiment Station, are beginning some important studies in this respect.

"When more complete results are reported from the biochemistry laboratory," says Mr. Raymaley, "it may be revealed that there is a lot of really fundamental feed value inherent in grass silage."

Hen's Singing Expresses Mood

Can you tell how a hen feels by the way she sings? Sidney Parketon, Newaygo County, Mich., farmer, who has studied the actions and corresponding noises of his laying hens for more than 30 years, says it is possible. He believes hens have three distinct "songs," each for a different purpose.

The first song is the lowpitched seldom emitted "cluck," which is noticed particularly when the hens have been well fed and are scratching about in the soil. Outside of an occasional cluck, the hens are quiet.

A second and higher pitched noise is made just before feeding time, or at any other time when the hens do not have sufficient food. As the hunger increases, the intensity of the song rises, until the whole flock produces a hub-bub. Once the appetite is satisfied the noise is no longer heard.

The third noise is "the song of distress," and of a much higher note than the other two.

Contrary to popular belief, he says, the frequent cackling is not made after an egg is laid, but is due to some other cause. He is continuing his studies along these lines.

—Michigan Farmer.

Fried Guinea Delicious

"We fry young guinea just like we do young chicken and enjoy it very much," says Mrs. A. W. Wood, Missouri. "Many people object to the gray film on the guinea's skin. I have found that it can be removed by brushing the picked fowl vigorously with a stiff vegetable brush."

When the guinea is chilled, I salt and flour the pieces and fry them in one-fourth to one-half inch fat. I use a chicken fryer with a tight fitting lid. In this heavy pan which holds heat, I can do the first cooking over a hot flame. Then I push the pan to the back of the stove where the cooking is completed. This method requires 30 minutes."

—Capper's Farmer, May, 1941.

Poultry Fencing

By J. T. SCHMIDLING

Condensed from American Poultry Journal

IF IT were possible to tabulate the number of chickens killed annually on the super speed highways of today, the number would not only be surprisingly high, but the amount of money lost would be enough to fence a good many poultry farms.

The cost of fencing may be a deciding factor to you now because of the immediate expense involved. However, think of total expense as an investment covering 3 to 4 years, and spread the initial cost over those yeas at so much a year. The benefits you will get through the use of poultry fences will be indirect benefits—but money in your pocket just the same.

Cut Down Accidental Losses

The number of accidental deaths will be cut down materially, especially if your poultry farm is located on or near a well traveled highway. Stray dogs sometimes wreak havoc in a young unprotected flock. A loss in this instance may be tremendous and can only be prevented if the youngsters have the protection of a good tight fence.

Growing chicks need an easily available green feed as well as a substantial growing mash if weight is to be taken on economically and fast. With the layers in mind, you can rest assured that if they have the protection of fences, the feed they eat will be conducive to egg production. Modern feeding practices now are based on the theory that the layers should spend more time eating and less time running around trying to find something to eat.

Practical Disease Control

Birds that are fenced in contact a minimum of disease, if the range is clean to begin with. Manure piles and refuse heaps, which are often sources of worm infestations and food poisoning, are out of their reach entirely.

The segregation of young and old flocks is a practice endorsed by poultry authorities everywhere. Under ordinary farm conditions where range is available and intended for poultry use as a feed saving measure, young and old stock can both enjoy the benefits of a green range if they each have a fenced yard.

Growing chicks having access to an adult-free range do not have the chance to contact the contaminated droppings of adult carriers of disease.

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, March, 1941)

They also develop better feeding habits, as there is less crowding at the mash hoppers.

Regulate Feeding

It is also common practice now to eliminate the males from the laying flock as soon as the breeding period is over in the belief that infertile eggs have better holding properties, especially during warm weather. Cockerels are often separated from the pullets as soon as possible and pushed for the broiler market either in batteries or on a separate range and under a more intense feeding than the pullets. Your range area can be utilized advantageously in the ways described by a simple fencing program.

Whatever your fencing needs are, remember that a fence put up with a reasonable amount of care, with a good grade of poultry wire strung tightly to firm posts, will last a long time and will always look neat. Metal posts are usually preferred because they are easily installed, last indefinitely, and can be removed with little trouble should a new location be desired.

On a small farm, double yarding is an inexpensive and desirable method for providing green feed for the layers and growing stock. It is a rotation system that allows the birds to feed from one yard while a crop of green feed is growing in the other plot. The yards may be as large as you think necessary. In grass ranging on a permanent sod, about 300 to 400 birds are generally conceded to be the limit for an acre if the sod is to be kept intact.

For the practical minded person we can boil this discussion down to the question, "How can the use of fences on my poultry farm save me money?" Probably the control of disease is the best answer to this question. The practice of using clean ranges, especially those used by the young stock — ranges that have not been used by adult birds for a year or two—has been discussed before in this article but the disease prevention value of such a practice has not been expanded.

Chicks that have access to the worm-egg-infested droppings usually found on ranges frequented by adult birds do not always show immediate symptoms of worminess. Treatment will bring them back to normal, but in the meantime much feed has been wasted with little growth to show for it, and the chicks have had a setback hard to make up. Other diseases that chicks are susceptible to, and adult birds as well, can be controlled by using clean housing and equipment, a well balanced ration, and by fencing separate ranges for the young and old stock.

Keep Birds in Hand

The angle of convenience is stressed more today than ever before in making better working and living conditions. On the poultry farm, adequate fencing methods can do much to speed up poultry chores. Your flock is not all over when you want them and underfoot when you don't. Fenced yards and runs keep them in the place that is most convenient and healthful to have them.

A laying flock, properly fenced in, makes better and more habitual use of the nests with the result that more eggs are available and less time is spent in collecting them. Then, too, clean eggs are more the rule and less the exception if the layers are restricted to a clean range, and keeping an eye open for culls and sick birds is more easily accomplished when the birds are together.

An attractive looking premises with a neat lawn and lots of flowers is well-nigh impossible with the chickens making themselves at home every place. They're bound to roost in any likely looking spot that takes their fancy, and dirty things up a bit—farm machinery is generally the first on their list. Possibly, to some, the decorative and orderly appearance of fenced poultry yards has no particular significance, but to others, who realize that they can combine attractiveness with a sound program of poultry management, it has added meaning.

Poultry not only look their best but they do their best when they are restricted in their range habits and are kept in line by properly installed fencing.

How Not to Brood Chicks

Last season I knew of a man who ordered 500 baby chicks and a new brooder house. The house was completed in time, but the man "was busy," and neglected to haul it home in time to have it ready for the chicks. A leaflet of "Do's and Don't" for raising chicks went with the chicks, but our friend chick buyer had a lot of chores to do, so he couldn't wait until the temperature was up to 90-95 degrees. It was 80 and "seemed warm enough," so the chicks were put under the hover. The house had two windows for ventilation, so one was left part way open all night.

In a short time, the chicks began dying and they were put on a sweet milk diet for three days without any other food. Mr. Chick Buyer had heard that that was the thing to do, but it was pullorum, without a doubt, so he expected the hatchery to make the loss good.

It seems to me a lot of people are more unreasonable in the care of their chicks than in everything else combined.

—Mrs. E. R. Sweet, Poultry Herald, March, 1941.

Teaching Chicks to Roost

When you stop to consider, it seems odd that such a natural thing as roosting has to be taught to young chickens. Since we must teach our young pullets to roost, it behooves us to make this lesson as easy on the birds as possible, as well as to make it most convenient for ourselves.

Some poultrymen who have gas heaters put their roosts down early, say at 3 to 4 weeks of age, and swing the brooder over the roosts for chicks to hover on the roost frame. Others may put the roosts down early for the birds to play on, but make no attempt to force them to roost until the brooders are taken out.

There are two important points in equipping a house for the roosting of chicks. One is to have inch-mesh poultry netting under the roosts. This gives the birds a place to hover when first made to roost. It will be several weeks before they will actually roost on the "poles." During this period, they should have wire to hover on to eliminate "sweating." This sweating of birds while hovering on the floor is almost sure to bring on coccidiosis. The other point regarding equipment is some kind of run-way from the floor to the roost platforms. This should be built across the whole front of the roost platform. This is important in saving you the trouble of "fishing" out pullets that are determined to get under your platform rather than on it.

One cardinal principle we have learned in roosting chicks is to be there before the birds have actually settled down some place besides the roosts you have built for them. This usually means a good half-hour before it is dark enough for them to stay on the roosts. If you wait until they have hovered down in some corner and you have to lift them onto the roosts, you are in for several nights of making them go to roost. A group of pullets in this frame of mind can try the patience of most anyone. We find that if we are careful in this regard, roosting can be accomplished in two evenings at the most.

We are using the "sunshine" brooder system and do not attempt to roost the birds until we take them out at six weeks of age. At this time they go into yards that are 40 by 10 feet with a 6 by 10-foot roosting shelter at one end. We have a lath panel runway across the whole front of the shelter from the roosts to the ground. When the pullets are ready to go to roost, we drive them up and raise this lath panel, which closes them in on the roosts. After dark, we lower this again. In over two years with this system, we have not had to roost a single lot of pullets after this first night of driving up.

—Hogsett's Chicken Chatter, April, 1941.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

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Egg production in March, equivalent to 12,808,000 cases, was 1 per cent larger than the layings of March 1940, 3 per cent larger than the 10-year (1930-39) average, and 7 per cent above the 5-year (1935-39) average. Although the average number of layers on farms in March was 3 per cent smaller than in March 1940, a 4 per cent larger rate of lay was more than an offsetting factor. Despite smaller numbers of layers this year compared with last in all parts of the country, total egg production was larger in all areas except the South Atlantic and Western States. Aggregate egg production for the first 3 months of this year was the largest of record for that period in the North Atlantic, East North Central, and South Atlantic States as well as for the country as a whole.

The rate of egg production per layer during March averaged 14.96 eggs for the United States, compared with 14.37 eggs a year ago, and with the

Teaching Chicks to Roost

When you stop to consider, it seems odd that such a natural thing as roosting has to be taught to young chickens. Since we must teach our

when first made to roost. It will be several weeks before they will actually roost on the "poles." During this period, they should have wire to hover on to eliminate "sweating." This sweating of birds while hovering on the floor is almost sure to bring on coccidiosis. The other point regarding equipment is some kind of run-way from the floor to the roost platforms. This should be built across the whole front of the roost platform. This is important in saving you the trouble of "fishing" out pullets that are determined to get under your platform rather than on it.

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—Hogsett's Chicken Chatter, April, 1941.

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National Poultry Digest

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POULTRY STATISTICS

Hens on Farms—Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Mar. 1	Apr. 1	Mar.1	Apr.1	Aggregate Jan.-Apr.	Mar.1	Apr.1	Aggregate Jan.-Apr.
North Atl.									
1930-39 (Av.)	97.5	93.5	90.0	42.8	55.9	160	40.1	50.2	149
1940	97.2	92.9	88.2	47.4	55.4	172	43.9	48.7	159
1941	95.4	89.8	87.5	48.5	56.7	184	43.5	49.5	168
E. N. Cent.									
1930-39 (Av.)	108.8	104.5	101.6	38.1	54.1	140	40.0	55.2	147
1940	110.8	106.6	101.7	40.9	52.8	148	43.9	53.8	158
1941	110.3	103.3	100.6	42.5	53.5	162	44.0	53.8	171
W. N. Cent.									
1930-39 (Av.)	117.6	112.9	111.4	34.2	52.1	124	39.1	58.0	141
1940	118.6	118.1	113.6	35.7	51.8	129	42.5	58.9	151
1941	116.1	115.0	111.4	40.4	53.6	146	46.4	59.4	166
South Atl.									
1930-39 (Av.)	58.6	55.9	53.6	42.7	52.0	146	23.9	27.8	81
1940	59.9	58.7	56.3	44.7	52.7	151	26.2	29.5	87
1941	59.4	56.0	54.5	45.5	54.4	163	25.4	29.2	91
South Cent.									
1930-39 (Av.)	64.4	61.7	58.4	42.1	53.2	140	26.0	30.9	86
1940	65.8	62.9	59.9	39.5	53.7	134	24.7	32.1	84
1941	62.7	60.2	57.3	45.5	54.7	156	27.3	31.2	94
Western									
1930-39 (Av.)	73.2	70.7	68.4	44.9	57.3	157	30.8	39.0	108
1940	73.7	69.7	67.4	48.0	59.1	169	32.3	39.5	115
1941	71.6	67.5	65.9	49.1	58.6	171	32.5	38.1	114
United States									
1930-39 (Av.)	84.0	80.6	77.9	39.2	53.6	139	31.8	41.6	112
1940	85.1	82.6	79.0	40.7	53.6	144	33.4	42.1	117
1941	83.2	79.7	77.1	43.9	54.7	159	34.9	41.8	127

Egg production in March, equivalent to 12,808,000 cases, was 1 per cent larger than the layings of March 1940, 3 per cent larger than the 10-year (1930-39) average, and 7 per cent above the 5-year (1935-39) average. Although the average number of layers on farms in March was 3 per cent smaller than in March 1940, a 4 per cent larger rate of lay was more than an offsetting factor. Despite smaller numbers of layers this year compared with last in all parts of the country, total egg production was larger in all areas except the South Atlantic and Western States. Aggregate egg production for the first 3 months of this year was the largest of record for that period in the North Atlantic, East North Central, and South Atlantic States as well as for the country as a whole.

The rate of egg production per layer during March averaged 14.96 eggs for the United States, compared with 14.37 eggs a year ago, and with the

10-year March average of 14.28 eggs. This year's rate exceeded last year and the 5-year average rate in every major geographic area; in all areas except the West it exceeded the 10-year average.

—Comment from Monthly Egg and Poultry Production Report.

Receipts of Eggs and Poultry

Receipts of eggs at eastern terminal markets have shown a seasonal increase, but are not equal to those of a year ago. A decrease of 13 per cent was reported in March, and April is also lower than in 1940 by about 9 per cent. On the other hand, receipts at central western country packing plants continue to exceed those of corresponding periods of last year, as has been the case since the first of the year. These packing plant increases are in the same direction as the upward production trend, for while the number of layers on farms was recently reported to be 3 per cent smaller than a year ago, a 4 per cent larger rate of lay has been more than an offsetting factor. Terminal market receipts are now lighter than in 1940, while at central western packing plants they are running heavier. This may possibly be due to the rather widespread Government buying of eggs which otherwise would have moved to terminal markets. Egg receipts at Pacific coast country plants are still showing an opposite trend from that of the central west, the rate of decrease under 1940 in California, Oregon and Washington being about the same as the rate of increase in the other area.

Receipts of dressed poultry at four markets in March were 13 per cent below those of March 1940, but April receipts are approximately the same as during that month last year. Stocks of poultry in cold storage on April 1 totaled 127 million pounds, of which 47 million pounds were turkeys. On April 1 last year total stocks were 115½ million lbs., including 53¾ million pounds of turkeys. April stocks were reduced in the 35 cities at a slightly slower rate than last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
April 5	29	39,091	+ 0.49	+4.40
April 12	30	37,776	− 4.07	−2.47
April 19	27	35,905	− 2.16	−3.72
April 26	26	40,127	+12.51	+8.29

—Compiled from U. S. D. A. market reports.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	March 1941	March 1940	% change	Jan. to Mar., Inc. 1941	Jan. to Mar., Inc. 1940	% change
New England	53,671	46,153	+16.3	167,277	145,235	+15.2
Middle Atlantic	213,731	220,932	− 3.3	652,626	557,935	+17.0
South Atlantic	27,737	38,034	−27.01	59,675	69,374	−14.0
East North Central	304,559	328,399	− 7.3	730,338	716,337	+ 2.0
West North Central	791,790	897,833	−11.8	1,730,441	1,644,997	+ 5.2
South Central	12,565	24,678	−49.1	19,639	42,662	−54.0
Mountain	18,013	46,898	−61.6	60,398	114,595	−47.3
Pacific	3,624	40,796	−91.1	26,219	169,801	−84.6
Miscellaneous	467	604	−22.7	1,269	1,223	+ 3.8
TOTAL	1,426,157	1,644,327	−13.3	3,447,882	3,462,150	− 0.4

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic Section	March 1941	March 1940	% change	Jan. to Mar., Inc. 1941	Jan. to Mar., Inc. 1940	% change
New England	209,235	500,277	−58.2	725,651	1,465,592	−50.5
Middle Atlantic	1,840,655	2,170,164	−15.2	5,120,596	4,699,225	+ 9.0
South Atlantic	2,495,313	2,561,260	− 2.6	7,231,102	6,718,580	+ 7.6
East North Central	3,809,263	3,589,904	+ 6.1	9,020,906	9,272,024	− 2.7
West North Central	7,245,329	8,297,694	−12.7	30,340,032	37,866,728	−19.9
South Central	1,057,912	1,941,243	−45.5	4,229,547	5,000,422	−15.4
Mountain	91,424	121,228	−24.6	2,152,181	2,360,881	− 8.8
Pacific	1,668,046	2,065,563	−19.2	4,869,501	7,283,182	−33.1
Miscellaneous	0	0	–	0	0	–
TOTAL	18,417,177	21,247,333	−13.3	63,689,516	74,666,634	−14.7

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1941	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1941	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1941	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) % Chg.
Apr. 5	281,890	250,573	+12.50	1,882	1,554	+21.04	Discontinued until			1,554	1,332	+16.62
Apr. 12	327,503	270,582	+21.04	1,528	1,511	+ 1.16	1941 Hatchings			1,230	1,295	− 5.02
Apr. 19	320,417	308,173	+ 3.97	1,513	1,772	−14.60	Are Available in			1,210	1,455	−16.85
Apr. 25	332,606	304,806	+ 9.12	1,477	2,051	−27.99	Larger Volume			1,043	1,639	−36.34

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
April 5	60	69,861	82,768	+1.35	−15.59
April 12	61	68,466	82,000	−2.82	−16.50
April 19	60	65,435	81,542	−3.64	−19.75
April 26	60	67,416	82,736	+2.93	−18.51

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
March	8.40	9.72	7.57	8.64	10.24	8.13
January-March	7.48	9.55	7.15	8.21	9.39	7.36
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration		10-Yr. Avg.	Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	1931-40	1941	1940	1941	1940
April 5	6.06	7.49	6.78	.215	.163	1.308	1.227
April 12	6.05	7.81	6.91	.218	.164	1.321	1.291
April 19	6.14	8.28	6.90	.217	.163	1.335	1.356
April 26	6.07	8.21	6.87	.217	.167	1.323	1.376

—Compiled from U. S. D. A. market reports.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
April 3	8.3	10.5	8.6	.244	.184	.193	2.03	1.92	1.66
April 10	8.2	10.2	8.9	.244	.184	.193	2.00	1.87	1.73
April 17	8.6	10.6	9.0	.236	.187	.195	2.03	1.99	1.75
April 24	8.7	11.0	9.0	.235	.185	.195	2.04	2.03	1.75

—Compiled by N. Y. State Department of Agriculture and Markets.

Egg Prices

Heavy buying by the Government was the dominant feature in egg markets during April, according to the Department of Agriculture. Purchases by the Federal Surplus Commodities Corporation lent strong support to the immediate situation, and the announced policy with respect to future activities placed further emphasis on the situation from a longer time standpoint. Prices changed somewhat during April, but average changes were not great, partly because of the relatively heavy supplies that have been available. Compared with a year ago, prices are up about 5 cents per dozen. Storing is actively under way, but at a slower rate than average.

Prices of eggs fluctuated somewhat in the major markets during April, but for the most part, the net changes were gains. At New York, Mixed Color Firsts are now (April 29) the same as on April 1, nearby White Specials are down 2 cents, but Pacific Coast Specials are up 1½ cents. Fresh Firsts at Chicago are ½ cent higher than on April 1. All Pacific Coast markets are higher, ranging from a 1 cent gain at San Francisco, to 2 cents at Seattle. Compared with a year ago, all of these prices average about 5 cents per dozen higher.

Most of the Government purchases of eggs in April were under the offer and acceptance plan. Acceptances included eggs from all sections of the country, with the better grades constituting a substantial percentage. Total purchases for the month (through April 28) were approximately 385,000 cases. Some eggs were bought on the Mercantile Exchange and the auction at New York, but the quantities were small in relation to the total quantities taken.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Apr. 5	Apr. 12	Apr. 19	Apr. 26	Apr. 26, '40
Mixed Color Firsts	23-23¼	22	22¾	22½-22¾	17¼-17½
Nearby and Midwestern White Premium Marks	26½-28	25½-26¾	24¾-26¼	24-25½	20-21½
Nearby and Midwestern White Exchange Special	26	24¾	24¼	23½	19½
Pacific Coast Specials	29½-30	29½-30	30-31	30-31	24½-26½
Nearby and Midwestern Brown Specials	24	23¾	24	23¼	19½

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4									

Eggs in Storage

Storage Holdings of Eggs

Kind	April 1 5-Year Avg. 1936-40	Apr. 1 1940	Mar. 1 1941	Apr. 1 1941	% Change Apr. '40-Apr. '41
		Thousands			
Shell Eggs (cases)	1,096	854	307	1,091**	+27.7
Frozen Eggs (lbs.)	60,012	44,199	45,239	63,430	+43.5
Frozen Case Equivalent (cases)*	1,715	1,263	1,292	1,812	+43.5
Total (cases)	2,811	2,117	1,599	2,903	+37.1

* Frozen eggs are converted on the basis of 35 pounds to the case.

** Includes 24,562 cases owned by the Surplus Marketing Administration for relief distribution.

Eggs have been moving into storage steadily since the middle of February. On April 1, total stocks in all cold storage warehouses were 1,091,000 cases compared with 854,000 cases a year earlier, or an increase of over 25 per cent. At the same time, the current year's increase over a year earlier in the 35 cities was barely 10 per cent. On the first of April this year, the 35 cities held only 65 per cent of total U. S. Stocks, while last year on the same date, 74 per cent of total stocks was in these markets.

As April progressed, the 35 cities lost the approximately 10 per cent gain over last year that existed at the first of the month. The report for April 26 showed not an increase, but a reduction under a year earlier, totaling about 14 per cent.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry Meat Prices

Mid-Month Farm Prices of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4									

The tone of the market on fowl is steady, but young stock lost strength during month, with prices down slightly. Compared with a year ago, current prices at the close of April are about 2 cents higher on fowl, and lower on broilers and fryers. Receipts of live poultry at central west packing plants were heavier than a year earlier during the first two weeks of April, dropping later to about the same percentage decrease that prevailed before. Largest decreases are shown on fowl.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	April 1 5-Year Avg. 1936-40	Apr. 1 1940	Mar. 1 1941	Apr. 1 1941	% Change Apr. '40-Apr. '41
	Thousand Pounds				
Broilers	8,465	6,486	7,603	5,590	–13.8
Fryers	8,265	4,737	10,811	7,964	+68.1
Roasters	19,130	15,694	28,847	22,949	+46.2
Fowls	14,447	17,043	28,952	22,034	+29.2
Turkeys	28,873	53,708	59,346	46,953	–12.6
Ducks	1,372	1,472	3,707	1,666	+13.2
Miscellaneous	14,461	10,109	14,494	11,428	+13.0
Unclassified		6,193	9,561	8,301	+34.0
Total	95,013	115,442	163,321	126,885	+ 9.1

Hatchery Operations

The production of commercial hatchery chicks during March set a new high record for the month, the Agricultural Marketing Service reports. The final estimate for the month showed an output of 193,428,000 chicks, or 18 per cent more than the production in March last year, and 6 per cent above the previous high record set in March 1939. The number of eggs set in March was 7 per cent larger than the number set in March last year, and the number of chicks booked on April 1 for later delivery was 28 per cent larger. The production of hatchery chicks for the first three months of the year shows an increase of 32 per cent over the same period last year and indicates that the total hatch for this year will probably be the largest of record.

The increase in hatchery chick production this year has been made through a greater utilization of existing hatching equipment rather than as a result of any marked increase in hatching facilities. A comparison of reports of identical plants for March this year and last shows an increase of 3 per cent in incubating capacity, but the same firms also show that in

Eggs Set by Commercial Hatcheries

Geographic Divisions	Mar. 1938	Mar. 1939	Mar. 1940	Mar. 1941	% chg. from Mar. 1940	Jan.-Mar. Inc. 1940	Jan.-Mar. Inc. 1941	% chg. from 1940
			Thousands					
New England	10,812	12,624	11,430	13,030	+14	28,249	35,375	+25
Middle Atlantic	29,156	29,338	26,763	28,101	+ 5	55,285	60,390	+ 9
South Atlantic	17,957	20,888	21,289	24,908	+17	40,258	52,869	+31
E. N. Central	85,532	93,397	91,050	95,602	+ 5	137,745	160,359	+16
W. N. Central	91,267	102,160	99,470	103,449	+ 4	143,806	166,566	+16
South Central	32,545	38,029	37,353	41,462	+11	68,312	84,871	+24
Mountain	5,832	7,167	6,922	7,614	+10	12,287	14,454	+18
Pacific	17,809	22,272	16,607	17,769	+ 7	37,496	42,458	+13
U. S.	290,910	325,877	310,884	331,935	+ 7	523,438	617,342	+18

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Mar. 1938	Mar. 1939	Mar. 1940	Mar. 1941	% chg. from Mar. 1940	Jan.-Mar. Inc. 1940	Jan.-Mar. Inc. 1941	% chg. from 1940
			Thousands					
New England	8,097	9,500	8,242	10,962	+33	17,953	26,602	+48
Middle Atlantic	17,576	17,604	16,536	18,024	+ 9	27,004	32,301	+28
South Atlantic	11,870	13,592	12,584	16,863	+34	23,582	34,798	+48
E. N. Central	42,052	48,404	42,379	50,007	+18	57,145	75,591	+32
W. N. Central	43,022	49,573	45,663	52,512	+15	58,106	73,535	+27
South Central	20,898	25,255	22,892	27,241	+19	35,812	49,276	+38
Mountain	3,448	4,121	3,930	4,520	+15	5,627	6,823	+21
Pacific	12,278	14,388	11,874	13,299	+12	21,746	25,950	+19
U. S.	159,241	182,437	164,100	193,428	+18	246,975	324,876	+32

March this year their combined chick output constituted 50 per cent of this year's capacity. In March last their output constituted only 45 per cent of their March capacity. This year's March capacity utilization is the largest ever reported for March.

A special mid-April inquiry on eggs set by commercial hatcheries during the first 15 days of April showed that 10 per cent more eggs were set than during the corresponding 15 days last year and indicates a continued output of hatchery chicks at record levels.

Approximately 37 per cent of the chicks hatched in March were of the light breeds and 63 per cent were of the heavy breeds. The division between light and heavy breeds last March was 40 per cent light breeds and 60 per cent heavy breeds. The increased proportions of heavy breeds this year reflects the strong demand for chicks from commercial broiler producers.

The number of chicks sexed in March was 26 per cent larger than the number sexed last year, and the per cent of the hatch sexed by firms which reported sexing both years was 39 per cent compared with 37 per cent during March last year. A continued strong demand for chicks for the remainder of the hatching season is almost certain.

Chicks booked on April 1 for later delivery were 28 per cent larger than on the same date last year, with all sections of the country reporting substantial increases.

The production of turkey poults and number of turkey eggs set by commercial hatcheries showed very little change from last year. Reports from 99 hatcheries showed 293,000 poults hatched in March—an increase of 1 per cent. The same plants reported 2 per cent more turkey eggs set than were set a year earlier. Poults booked April 1 for April or later delivery reported by 29 plants showed an increase of 12 per cent.

—Comment from U. S. D. A. Hatchery Report.

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Apr. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Apr. 1, 1940	March 1940	March 1941	March 1940	March 1941	% change from March 1940
New England	+69	6	6	94	94	+ 68
Middle Atlantic	+10	51	48	49	52	+ 3
South Atlantic	+72	20	15	80	85	+350
E. N. Central	+25	31	28	69	72	+ 44
W. N. Central	+17	35	35	65	65	+ 25
So. Central	+57	32	32	68	68	+ 58
Mountain	+34	41	42	59	58	+ 7
Pacific	+15	80	79	20	21	+ 14
U. S.	+28	40	37	60	63	+ 26

Turkey Eggs Set, Poults Hatched, and Poults Booked by Commercial Hatcheries

Geographic Section	No. Plants rptg. both years	Eggs set in March			Salable Poults Hatched in March			Poults booked April 1 for April or later delivery			
		1941	1940	% chg.	1941	1940	% chg.	No. of Plants	1941	1940	% chg.
		Thousands			Thousands				Thousands		
N. Eng., Md. Atl. & S. Atl.	20	124	126	–2	7	27	–74	18	191	191	–
E. N. C., W. N. C. & S. Cen.	50	436	434	–	114	112	+ 2	33	370	341	+ 9
Mt. & Pacific	29	1,090	1,065	+2	176	154	+14	18	986	845	+17
U. S.	99	1,650	1,625	+2	297	293	+ 1	69	1,547	1,377	+12

Egg Breaking Operations

Egg breaking operations this spring have been relatively heavy. Production in March was 30 per cent above that of a year earlier, and frozen egg stocks on April 1 of 63½ million pounds, exceeded those of the same date in 1940 by more than 40 per cent. Of this quantity, 35 million pounds were in the 35 cities, and at the close of the week ending April 26, these stocks had increased 19¾ million pounds up to a total of 54¾ million pounds. This quantity was slightly more of an increase over the corresponding period of last year than existed on April 1.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		March 1941	March 1940	Jan. to Mar., Inc. 1941	Jan. to Mar., Inc. 1940
Eggs in shell	(Doz.)	358,750	362,728	978,896	858,167
Eggs Products, frozen, dried, etc.	(lbs.)	77,252	23,121	129,288	52,136
Live Poultry	(lbs.)	7,636	15,401	18,825	35,015
Dressed Poultry	(lbs.)	215,902	78,725	564,962	295,052

Imports of Eggs and Poultry

Commodity		March 1941	March 1940	Jan. to Mar., Inc. 1941	Jan. to Mar., Inc. 1940
Eggs in shell	(Doz.)	29,920	18,125	64,354	51,247
Whole Eggs, dried	(lbs.)	0	5,000	0	19,500
Whole Eggs, frozen	(lbs.)	0	0	89	167
Yolks, dried	(lbs.)	107,020	157,762	440,032	385,426
Yolks, frozen	(lbs.)	0	0	420	0
Egg Albumen, dried	(lbs.)	35,200	26,400	68,692	84,600
Egg Albumen, frozen	(lbs.)	0	0	0	0
Live Poultry	(lbs.)	145,019	57,332	353,035	158,534
Dressed Poultry	(lbs.)	10,464	14,496	32,188	44,682
Poultry, prepared	(lbs.)	29,308	45,741	155,671	169,141

Making Hens "Set"

Flock-owners who want to have hens ready to "set" when needed can try the control method worked out by D. F. King, of Alabama Polytechnic Institute. In from four to six days a hen can be made to forget about laying and turned into a real broody. Here's King's way:

Confine the hen for 24 hours without feed or water, then put her in a nest about 12 inches square, with either 10 hard-boiled or artificial eggs, or 4 hard-boiled eggs and 2 one-day-old chicks. Cover the nest opening with burlap bag and leave the hen undisturbed for 4 or 5 days, except for a 15 to 20-minute feeding period once each day. In 4 or 5 days the hen becomes broody, and will either take a setting of eggs to hatch, or will brood purchased chicks.

King found that all of the hens he worked with became broody when day-old chicks were used, and more than half of them became broody when eggs were used. If the hen is made broody by using chicks and is to be set on eggs, King makes certain that she is very broody by keeping her confined 6 or 7 days.

—Farm Journal, May, 1941.

Turkey Killer Dies in Tub

The coyote wasn't taking a bath, but it was in the bathtub of a ranch home near Tonopah, Nev., that it met its death.

Mrs. Emery Garrett discovered a coyote bothering her turkeys and started after it with a shotgun. The coyote spotted a window — a long jump, a broken window, and the coyote was in the house.

Harry Lewis, Mrs. Garrett's nephew, chased the animal inside the house and finally cornered it in the bathroom. The coyote spotted another window, but this one didn't break. The unwelcomed visitor fell into the bathtub, where Lewis shot it.

—Turkey World.

❧ ONE of the lesser prizes of war apparently won by the Germans is the European feather industry. Prosperity of this trade formerly depended on Parisian couturiers. But now it is dominated by Vienna, which, in the role of fashion capital, recently decreed bird plumage for evening dress adornment, says the New York Times.

RESULTS OF LAYING TESTS

Nothing less than sensational is the record made through the six months to date by the leading pens at the various laying tests. Blue ribbon pen on April 1 is J. A. Hanson's White Leghorn team at Storrs, having the high average of 163.61 eggs and 172.86 points per bird for the 182 days thus far. Next highest pen is T. N. Wilcox's Barred Rock outfit at Georgia. These birds produced more points than any other pen during March, and continue at record-breaking speed. Third highest pen to date is E. B. Parmenter's Rhode Island Red entry at Maine. It is interesting to note that all of these three pens mentioned are out in front of the foremost pen in all tests last year at the same time.

Top pen to April 1 among the New Hampshires is Colonial Poultry Farms' leaders at the Texas Test. Carter-Dunham has the top-notch White Rock pen, and R. S. Thomas has the number one Ancona team in the country to April 1.

Colonial Poultry Farms' New Hampshire hen and W. A. Seidel's White Leghorn hen, both at Texas, are running neck and neck with 180 eggs each. The New Hampshire bird has 197.6 points, while the Leghorn has 197.2 points to date.

Ten tests had one or more hens to make perfect scores during March. Texas continues in first place among all tests, followed in order by Arizona and Storrs.

Twenty Highest Pens, All Breeds, to April 1—(151 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	2127	2247.30	Storrs
T. N. Wilcox	Barred Rock	2121	2239.25	Georgia
E. B. Parmenter	Rhode Island Red	2029	2167.75	Maine
J. J. Warren	Rhode Island Red	1977	2099.95	Long Island
L. D. Bartholomew	Rhode Island Red	1956	2082.25	Storrs
G. B. Treadwell	Rhode Island Red	1980	2073.55	Maine
H. J. Hardin	Rhode Island Red	1992	2063.65	Georgia
J. J. Warren	Rhode Island Red	1942	2052.85	Texas
E. B. Parmenter	Rhode Island Red	1945	2028.75	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	1935	2019.75	Long Island
Colonial Poultry Farms	New Hampshire	1908	2015.70	Texas
J. J. Warren	Rhode Island Red	1871	2015.65	Maine
Booth Farms and Hatchery	White Leghorn	1938	2015.25	Georgia
Rapp's Poultry Farm	White Leghorn	1939	2012.85	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	1979	2011.95	Texas
W. H. Wilson	Rhode Island Red	2010	2008.65	Georgia
Missouri Valley Hatchery	Rhode Island Red	1842	2002.90	Missouri
E. B. Parmenter	Rhode Island Red	1969	2001.25	Paterson, N. J.
J. A. Hanson	White Leghorn	1903	1998.05	Rhode Island
E. B. Parmenter	Rhode Island Red	1860	1991.40	Rhode Island

High Pen in Each Standard Test to April 1—(182 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	2127	2247.30	Storrs
T. N. Wilcox	Barred Rock	2121	2239.25	Georgia
E. B. Parmenter	Rhode Island Red	2029	2167.75	Maine
J. J. Warren	Rhode Island Red	1977	2099.95	Long Island
J. J. Warren	Rhode Island Red	1942	2052.85	Texas
E. B. Parmenter	Rhode Island Red	1945	2028.75	Passaic, N. J.
Rapp's Poultry Farm	White Leghorn	1939	2012.85	Hunterdon, N. J.
Missouri Valley Hatchery	Rhode Island Red	1842	2002.90	Missouri
E. B. Parmenter	Rhode Island Red	1969	2001.25	Paterson, N. J.
J. A. Hanson	White Leghorn	1903	1998.05	Rhode Island
Crescent Farms	White Leghorn	1901	1982.50	Florida
Crooks Farm	Rhode Island Red	1849	1939.00	Pennsylvania
E. B. Parmenter	Rhode Island Red	1854	1928.45	California
J. J. Warren	Rhode Island Red	1843	1903.15	Western New York
Missouri Valley Hatchery	Rhode Island Red	1761	1811.30	Oklahoma
Gold Spot Hatchery	White Leghorn	1703	1808.40	Arizona
Bodine's Pedigreed Leghorns	White Leghorn	1843	1799.95	Central New York
J. J. Warren	Rhode Island Red	1670	1757.20	Michigan

High Pen in Each Standard Test for March

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	361	394.30	Georgia
Harco Orchards	Rhode Island Red	362	393.20	Storrs
E. B. Parmenter	Rhode Island Red	361	378.80	Paterson, N. J.
Williamson's New Hamp. Farm	New Hampshire	343	371.55	Florida
Sand Springs Home Farm	White Leghorn	347	369.95	California
R. H. Gee	Rhode Island Red	344	369.30	Rhode Island
J. W. Schaible	Barred Rock	342	368.90	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	345	365.45	Passaic, N. J.
J. A. Hanson	White Leghorn	334	360.25	Pennsylvania
J. J. Warren	Rhode Island Red	334	358.40	Texas
R. C. E. Wallace	Barred Rock	337	356.50	Long Island
E. B. Parmenter	Rhode Island Red	332	356.35	Western New York
R. C. E. Wallace	Barred Rock	332	355.10	Central New York
E. B. Parmenter	Rhode Island Red	326	353.50	Maine
R. C. E. Wallace	Barred Rock	332	352.80	Oklahoma
Aseltine Poultry Farm	Rhode Island Red	323	351.30	Michigan
Manti-Apex Hatcheries	White Leghorn	318	345.05	Arizona
J. J. Warren	Rhode Island Red	309	332.70	Missouri

High Pen in Each Breed to April 1—(182 Days)

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	2127	2247.30	Storrs
T. N. Wilcox	Barred Rock	2121	2239.25	Georgia
E. B. Parmenter	Rhode Island Red	2029	2167.75	Maine
Colonial Poultry Farms	New Hampshire	1908	2015.70	Texas
Carter-Dunham	White Rock	1621	1665.90	Texas
R. S. Thomas	Ancona	1623	1577.40	Pennsylvania
Harvey E. Taylor	White Wyandotte	1599	1544.80	Texas
Paul Hansen	Black Australorp	1528	1541.10	California
Iowa Master Breeders	R. C. Rhode Island Red	1378	1438.10	Texas
E. J. Covey	Black Minorca	1254	1298.95	Texas
Illinois Hatchery	Brown Leghorn	1193	1224.95	Texas
Lindstrom Poultry Farm	Buff Minorca	1286	1217.30	Texas
Superior Hatchery	Light Brahma	1113	1172.65	Texas
S. E. Raymond	Lamona	1028	1083.35	Storrs
Howard C. Jones	Buff Orpington	1066	1078.35	Florida
Raymond Murphy	White Giant	1002	1064.00	Missouri
Ward's Poultry Farm	Buff Leghorn	1045	1018.35	Oklahoma
Colonial Poultry Farms	White Minorca	786	848.30	Missouri

High Hen in Each Breed to April 1—(182 Days)

Owner	Breed	Eggs	Points	Test
Colonial Poultry Farms	New Hampshire	180	197.60	Texas
W. A. Seidel	White Leghorn	180	197.20	Texas
E. B. Parmenter	S. C. Rhode Island Red	177	192.50	Rhode Island
T. N. Wilcox	Barred Rock	173	187.20	Georgia
Lindstrom Poultry Farm	White Rock	170	178.30	Georgia
Harvey E. Taylor	White Wyandotte	153	162.00	Texas
Iowa Master Breeders	R. C. Rhode Island Red	149	160.70	Texas
Paul Hansen	Black Australorp	147	156.45	California
S. E. Raymond	Lamona	144	149.80	Storrs
Superior Hatchery	Light Brahma	141	143.00	Texas
Raymond Murphy	White Giant	129	140.80	Missouri
R. S. Thomas	Ancona	133	136.05	Pennsylvania
Howard C. Jones	Buff Orpington	128	134.85	Florida
E. J. Covey	Black Minorca	128	134.20	Texas
Lindstrom Poultry Farm	Buff Minorca	123	129.95	Texas
Illinois Hatchery	Brown Leghorn	135	127.70	Texas
Ward's Poultry Farm	Buff Leghorn	105	102.25	Oklahoma
Colonial Poultry Farms	White Minorca	93	99.85	Missouri

High Hen in Each Standard Test to April 1—(182 Days)

Owner	Breed	Eggs	Points	Test
Colonial Poultry Farms	New Hampshire	180	197.60	Texas
E. B. Parmenter	Rhode Island Red	177	192.50	Rhode Island
E. B. Parmenter	Rhode Island Red	179	191.35	Storrs
Rapp's Poultry Farm	White Leghorn	174	190.80	Hunterdon, N. J.
Foreman Poultry Farm	White Leghorn	177	190.35	Georgia
Missouri Valley Hatchery	Rhode Island Red	170	186.25	Missouri
Guy A. Leader	White Leghorn	177	185.90	Pennsylvania
G. B. Treadwell	Rhode Island Red	171	185.60	Maine
E. B. Parmenter	Rhode Island Red	168	182.40	Passaic, N. J.
J. J. Warren	Rhode Island Red	165	180.90	Florida
Missouri Valley Hatchery	Rhode Island Red	169	180.80	Oklahoma
J. J. Warren	Rhode Island Red	165	180.65	Long Island
W. A. Seidel	White Leghorn	166	180.35	Arizona
E. B. Parmenter	Rhode Island Red	168	179.45	Paterson, N. J.
J. J. Warren	Rhode Island Red	172	179.05	Western New York
E. B. Parmenter	Rhode Island Red	165	171.55	California
Foreman Poultry Farm	White Leghorn	164	167.05	Michigan
R. C. E. Wallace	Barred Rock	154	164.00	Central New York

Twenty Highest White Leghorn Pens in Country to April 1

Owner	Eggs	Points	Test
J. A. Hanson	2127	2247.30	Storrs
Booth Farms and Hatchery	1938	2015.25	Georgia
Rapp's Poultry Farm	1939	2012.85	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	1979	2011.95	Texas
J. A. Hanson	1903	1998.05	Rhode Island
J. A. Hanson	1906	1985.20	Storrs
Crescent Farms	1901	1982.50	Florida
Burr's Poultry Farm	1899	1918.95	Pennsylvania
Rochelle Egg Farm and Hatchery	1889	1885.90	Texas
Geo. M. Heberer	1811	1879.00	Florida
Hollywood Poultry Farm	1965	1874.80	Georgia
McCoon's Poultry Breeding Farm	1883	1870.90	Texas
Geo. M. Heberer	1818	1863.90	Texas
J. A. Hanson	1795	1856.65	Pennsylvania
M. Johnson	1777	1836.85	Texas
Creighton Brothers	1770	1833.85	Hunterdon, N. J.
Thomascello Leghorn Breeders	1755	1831.60	Florida
Foreman Poultry Farm	1904	1827.50	Georgia
Guy A. Leader	1738	1823.60	Pennsylvania
W. A. Seidel	1705	1821.00	Texas

Twenty Highest Rhode Island Red Pens in Country to April 1

Owner	Eggs	Points	Test
E. B. Parmenter	2029	2167.75	Maine
J. J. Warren	1977	2099.95	Long Island
L. D. Bartholomew	1956	2082.25	Storrs
G. B. Treadwell	1980	2073.55	Maine
H. J. Hardin	1992	2063.65	Georgia
J. J. Warren	1942	2052.85	Texas
E. B. Parmenter	1945	2028.75	Passaic, N. J.
E. B. Parmenter	1935	2019.75	Long Island
J. J. Warren	1871	2015.65	Maine
W. H. Wilson	2010	2008.65	Georgia
Missouri Valley Hatchery	1842	2002.90	Missouri
E. B. Parmenter	1969	2001.25	Paterson, N. J.
E. B. Parmenter	1860	1991.40	Rhode Island
R. H. Gee	1924	1982.65	Rhode Island
Harco Orchards	1874	1979.75	Storrs
E. B. Parmenter	1915	1975.30	Georgia
J. J. Warren	1850	1970.50	Missouri
J. J. Warren	1889	1966.55	Florida
Roberts Poultry Farm	1820	1951.20	Storrs
G. B. Treadwell	1863	1946.10	Storrs

Twenty Highest New Hampshire Pens in Country to April 1

Owner	Eggs	Points	Test
Colonial Poultry Farms	1908	2015.70	Texas
Thomas J. Harrold	1946	1984.10	Georgia
Williamson's New Hampshire Farm	1853	1948.45	Florida
George A. Pearce	1867	1874.30	Hunterdon, N. J.
C. D. Cummings	1908	1866.25	Georgia
James H. Horne	1720	1836.10	Storrs
M. L. Estabrook	1768	1821.55	Maine
Joachim Breeding Farm	1738	1814.45	Long Island
A. L. Frees	1689	1762.30	Arizona
W. G. Ashby	1697	1761.95	Arizona
Pine Mountain Valley Farms	1785	1751.00	Georgia
A. J. Williams	1728	1747.00	Florida
Ned C. Willoughby	1713	1728.25	Georgia
Thomas J. Harrold	1697	1722.05	Georgia
Gold Spot Hatchery	1629	1704.50	Arizona
Hubbard Farms	1619	1690.75	Pennsylvania
Rhodes Hatchery	1643	1682.10	Florida
Ned C. Willoughby	1684	1675.60	Florida
Williamson's New Hampshire Farm	1608	1673.05	Florida
G. E. Nemec	1583	1665.40	Arizona

Twenty Highest Barred Plymouth Rock Pens in Country to April 1

Owner	Eggs	Points	Test
T. N. Wilcox	2121	2239.25	Georgia
T. N. Wilcox	1807	1900.70	Florida
J. W. Schaible	1818	1854.15	Hunterdon, N. J.
David T. Cohen	1745	1844.90	Pennsylvania
Dryden Poultry Breeding Farm	1737	1785.15	Storrs
A. J. Urquhart	1717	1785.05	Storrs
Dryden Poultry Breeding Farm	1737	1766.95	California
David T. Cohen	1645	1743.70	Arizona
Dryden Poultry Breeding Farm	1736	1743.20	Pennsylvania
Foster Jameson	1633	1719.25	Maine
E. B. Parmenter	1648	1696.85	Pennsylvania
Booth Farms and Hatchery	1603	1696.25	Missouri
David T. Cohen	1613	1681.95	Georgia
David T. Cohen	1664	1680.05	Storrs
Ellsworth V. Stanley	1596	1672.35	Pennsylvania
Fuzzydele Farms	1621	1659.05	Storrs
P. N. Hibbard	1699	1652.10	Storrs
Dryden Poultry Breeding Farm	1569	1642.70	Missouri
Penn's Poultry Breeding Farm	1594	1601.40	Texas
Booth Farms and Hatchery	1568	1596.50	Georgia

Twenty Highest White Plymouth Rock Pens in Country to April 1

Owner	Eggs	Points	Test
Carter-Dunham	1621	1665.90	Texas
Albert C. Lawton	1687	1653.60	Storrs
Kalerok Farm	1550	1643.00	Rhode Island
Colonial Poultry Farms	1519	1610.50	Oklahoma
Airy View Farm	1524	1569.30	Hunterdon, N. J.
Alfred Mac Millan	1535	1535.80	Texas
Carter-Dunham	1531	1527.00	Georgia
Booth Farms and Hatchery	1526	1510.45	Texas
Booth Farms and Hatchery	1399	1494.90	Missouri
C. W. Winkler	1437	1494.15	Oklahoma
Carter-Dunham	1422	1480.95	Storrs
Hillview-Imperial	1462	1468.10	Storrs
John Spangenberg	1433	1464.30	Pennsylvania
Riley Poultry Farm	1528	1462.35	Michigan
Drumm Egg Farm	1414	1451.90	Georgia
McDonald Hatchery	1381	1448.75	Texas
Riley Poultry Farm	1439	1439.95	Texas
Missouri Valley Hatchery	1317	1381.70	Missouri
Gene-Garden Poultry Farm	1378	1368.00	Maine
John Spangenberg	1354	1361.65	Maine

Average Production and Mortality in Each Test to April 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Mar.	Per Cent Mortality to Date
Texas	1,300	117.80	119.88	24.40	1.23	7.38
Arizona	390	115.34	119.53	24.86	3.07	8.46
Storrs	1,300	113.25	116.00	24.57	1.61	6.84
Pennsylvania	1,027	114.09	115.38	24.26	1.55	8.27
Rhode Island	546	109.39	114.91	25.15	1.64	8.60
Georgia	1,300	115.06	114.88	23.95	2.07	10.46
Florida	1,248	111.50	113.29	24.38	2.08	8.49
Hunterdon, N. J.	650	108.25	110.11	24.40	1.23	8.76
Passaic, N. J.	1,014	104.84	105.82	24.21	1.08	8.48
Maine	975	102.97	103.47	24.09	1.33	7.78
Paterson, N. J.	169	101.63	103.17	24.48	1.77	10.05
Oklahoma	650	103.04	103.10	24.14	1.23	7.69
California	650	99.49	101.64	24.50	1.23	5.53
Missouri	780	94.49	100.02	25.39	2.30	10.25
Long Island	1,131	97.64	97.85	24.04	1.41	5.57
Western New York	884	87.14	89.73	24.69	1.24	5.99
Central New York	910	85.99	86.87	24.24	1.31	6.92
Michigan	780	81.03	80.52	23.83	1.41	12.56
All Tests	15,704	104.40	106.05	24.36	1.56	8.08

High Pen in Each Breed, Vineland, N. J., Hen Test to April 1

Owner	Breed	Eggs	Points	Class
J. J. Warren	Rhode Island Red	945	1032	Two-Year
Sebold Poultry Farm	White Leghorn	867	947	Two-Year
Vaughn's Hatchery	New Hampshire	844	913	Two-Year
Pleasant Valley Farm	White Rock	772	840	Two-Year
Eben Wood	Barred Rock	704	765	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	704	768	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	371	405	Four-Year
J. J. Warren	Rhode Island Red	323	348	Four-Year
Dembro Poultry Farm	White Leghorn	1025	1115	Mixed-Age
Schwegler's Hatchery	Barred Rock	830	885	Mixed-Age
Wene Chick Farms	New Hampshire	681	740	Mixed-Age
Kerr Chickeries	Rhode Island Red	611	666	Mixed-Age
Quimby School	White Rock	630	659	Mixed-Age
Schwegler's Hatchery	White Wyandotte	518	552	Mixed-Age

High Pen in Each Breed, Vineland, N. J., Hen Test—Lifetime Records

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	4898	5222	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	4861	5135	Two-Year
Eben Wood	New Hampshire	4081	4410	Two-Year
Eben Wood	Barred Rock	3984	4281	Two-Year
E. R. Rutter	White Rock	4042	4205	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	7224	7810	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	7896	8529	Four-Year
J. J. Warren	Rhode Island Red	7314	7857	Four-Year

High Pen in Each Breed, Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Lindstrom Poultry Farm	White Leghorn	4716	5036.20	Two-Year
Crooks Farm	Rhode Island Red	4715	5021.10	Two-Year
Schwegler's Hatchery	White Wyandotte	4289	4445.40	Two-Year
E. B. Parmenter	Barred Rock	4125	4307.35	Two-Year
Pine Top Poultry Farms	New Hampshire	3968	4165.30	Two-Year
Claribel Henault	White Rock	3899	4046.75	Two-Year
Schwegler's Hatchery	White Leghorn	7082	7444.60	Three-Year
J. J. Warren	Rhode Island Red	7123	7266.85	Three-Year

High Pen in Each Breed, Pennsylvania Hen Test to April 1

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	1100	1204.10	Two-Year
Crooks Farm	Rhode Island Red	1090	1187.20	Two-Year
Schwegler's Hatchery	White Wyandotte	1074	1155.70	Two-Year
E. B. Parmenter	Barred Rock	840	908.70	Two-Year
Pine Top Poultry Farms	New Hampshire	840	901.00	Two-Year
Claribel Henault	White Rock	750	814.40	Two-Year
Schwegler's Hatchery	White Leghorn	946	1018.20	Three-Year
J. J. Warren	Rhode Island Red	787	860.30	Three-Year
R. H. Barteaux	White Leghorn	935	1012.65	Mixed-Age
E. B. Parmenter	Barred Rock	856	929.70	Mixed-Age
E. B. Parmenter	Rhode Island Red	813	886.45	Mixed-Age
Fuzzydele Farms	New Hampshire	685	743.55	Mixed-Age

High Pen, Each Breed, in Illinois Non-Standard Test to April 1

Owner	Breed	Eggs	Points
Belldear Hatchery	White Rock	1017	1056.75
Walter Swanson	White Leghorn	1002	977.85
Illinois Hatchery	Barred Rock	931	938.00
Belldear Hatchery	White Wyandotte	860	929.15
Coyne Breeding Farm	New Hampshire	867	890.25
Wallace Moody	Buff Rock	863	864.15
Illinois Hatchery	Rhode Island Red	791	821.80
Illinois Hatchery	Brown Leghorn	663	708.90
Berry-Ajax Hatchery	Black Australorp	450	442.65

◄◄ THE ENGLISHMAN may soon be eating sea gull eggs for breakfast, according to recent news from London, says the New York Times. The Ministry of Agriculture and Fisheries has made arrangements to have eggs collected and sold on various markets during the spring laying season. Sea gull eggs are similar in taste to duck eggs.

◄◄ SMOKED Long Island duck is now available, according to the New York Times. One large duck grower is offering the new product at 65 cents a pound.

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NATIONAL POULTRY DIGEST

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Vol. 3, No. 30 June 15, 1941

Dried Eggs for Lease-Lend Shipments

By H. L. SHRADER

U. S. D. A. Extension Service

Reprinted from Marketing Activities

POULTRY specialists have known for a long time that fresh eggs, the kind you like for breakfast, are about 75 per cent water. That fact has never seemed very important, for eggs are just about tops in nutritive value.

Now that the U. S. has launched a program to supply eggs to Great Britain under the Lease-Lend Act, however, the high moisture content of this product is being given more consideration by the experts at the Department of Agriculture. Not only does water make up a large part of the bulk and weight of eggs; it contributes to their perishability. Considering the scarcity of ships, particularly ships with refrigerating equipment, the exportation of fresh eggs in large quantities presents a real difficulty.

Drying Solves the Problem

So it looks as if the Nation's egg-drying plants were in for a banner year. Using modern sanitary techniques, these plants will remove the water from eggs—a whole lot of eggs—and fit them for their long zig-zag voyage across the North Atlantic. Then, in a British kitchen or commissary, water will be added to the egg powder and the reconstituted

U. S. Department of Agriculture, Agricultural Marketing Service
(Marketing Activities, May, 1941)

product will be ready for certain uses.

Dried eggs have been used in the baking industry for many years, though some of the products, such as meringue for pies, are not particularly essential during a war emergency. However, for use in yellow cakes, doughnuts, pancake flours, and noodles, the dried product is admirably adapted, and dried whole eggs can be used for omelets or for scrambling. The reconstituted powder does not regain the texture of fresh eggs, of course, but it is more palatable than might be imagined. In any event, the British are not insisting on strictly fresh eggs these days.

Manufacturing Process is Simple

The manufacturing process for producing dried whole eggs is relatively simple. The eggs, after chilling, are sent to a breaking room where workers, generally women, break the eggs by striking them against a knife, the blunt end of which is standing upright. The egg is pulled apart from the underside (homemakers please note) and the shell is held poised for a few seconds in order for the white to drain. Not over three eggs are broken in one small cup; then they are examined to detect any musty or foreign odors. If the contents of the cup do not appear to be wholesome, all three eggs are discarded.

The liquid eggs that pass inspection are placed in a large vat and churned to a smooth homogeneous mixture. Then this mixture is forced by powerful pumps through fine nozzles, under pressure of 1,500 to 3,000 pounds per square inch, into a high-ceilinged, conical chamber kept at a temperature of 160 to 220 degrees Fahrenheit. The air in the drying chamber is brought in through a filter and is circulated rapidly by a blower. The liquid egg spraying from the nozzles is almost instantly dried as it hits the heated air, the dried product falling down the steeply sloping sides of the chamber in the form of a flour-like powder. In recent years this method has been used almost exclusively for drying whole egg and yolk.

A standard-size case containing 30 dozen fresh whole eggs weighs about 45 pounds net, but when the shell and water are removed, that weight reduces to 10 pounds of dried whole egg powder. The dehydrated product is usually packed in barrels holding 200 pounds net, so one barrel of the product is equivalent to 20 cases of fresh eggs.

Dried whole eggs can be held in normal dry storage without refrigeration for relatively long periods, the only precaution necessary being that of keeping them in a moisture and vapor-proof package.

Patents Sought In 1865

The problem of reducing the bulk and perishability of eggs in this manner was explored as early as 1865, when patents were sought by various inventors of drying processes. Charles A. LaMont was probably the first inventor of such a process, but there is no record of his actually operating an egg-drying plant until about 1878. In spite of the optimism expressed for this new form of eggs, drying continued only on a small scale until near the turn of the century. But from 1895 to 1905 the egg-drying industry made rapid advances in the United States. A number of plants began operations, and dried eggs were shipped to Alaska and even to China for the use of the United States Army there.

Along about 1915, egg prices, like prices of other products, began to rise sharply as a result of the war in Europe, and this caused a large part of the egg-drying industry to move to China. The difficulties the industry had with governmental agencies because of unsatisfactory products might also have had some influence on the decision to make a move. In addition, the opening of the Panama Canal aided the growth of Chinese exports of egg products to the United States by permitting cheaper shipping to the Atlantic Seaboard. At any rate, several American firms erected factories in China between 1915 and 1920, including the Amos Bird factory and the National Bakers' Egg Co. The capacity of the plants built in China ranged from 500 to 24,000 pounds of finished product a day.

Tariff Applied in 1922

In the meantime, the industry in the United States was in the doldrums. A number of attempts were made to dry eggs from time to time, but these efforts were unsuccessful because of unfavorable price relationships between the domestic and imported product. Imports were pouring into the country, and in September 1922 a tariff of 18 cents a pound on eggs went into effect. During the next 3 years, partially as a result of the tariff, imports declined somewhat, but they still remained relatively large.

In 1925, the Poultry Producers of Central California Cooperative Association began producing dried eggs, but in the annual report covering operations for the year 1926, the manager stated, "The association has definitely decided that it cannot dry eggs in competition with the imported product."

Domestic Production Expanding

Civil war conditions in China in 1927 curtailed exports of dried eggs, and the domestic industry began to perk up. Two plants began operations in 1927, two more in 1928, and an additional plant drying albumen was established in 1929. The total production of these plants was small, however, until declining egg prices in 1930 and 1931 resulted in a more favorable relationship with Chinese prices, and a tariff increase in July 1931, from 18 cents to 27 cents a pound, caused an even greater expansion in the domestic production of dried albumin and yolk. The domestic production of dried-egg products, expanding as the general business depression deepened, reached a peak in 1933. But that record was exceeded in 1939.

The egg-drying industry in the United States is fairly well established today. The industry itself is small, but most of the firms comprising it represent fairly large-scale enterprises – egg-breaking establishments, cooperative marketing associations, meat packers, and importers. Usually the production of dried-egg products is only incidental to other operations of these firms. A recent survey showed that 18 plants are now in operation, 9 in Texas and others in Illinois, Missouri, Nebraska, Kansas, Oklahoma, Washington, Oregon, and California.

7,000,000 Pounds Produced in 1940

About 7 million pounds of dried eggs were produced last year during the normal season that extends from March to July. This year, by increasing the hours the machines are operated and by lengthening the season, the volume of eggs dried could probably be expanded to 50 million pounds without building new plants. It may be necessary, however, to hold some eggs in storage from the peak production months—March, April, and May—until after the first of July.

The recently-announced price supporting program is being accompanied by a plan to make use of all available production facilities. Poultry producers out in the Corn Belt and in some of the Western States have never completely recovered from the drought, and they have been falling a little behind in poultry production the last few years. Most of these farmers, however, still have the equipment to expand production above the present level. The Department of Agriculture, while not urging farmers in these areas to build new facilities, would like to see all existing facilities fully utilized. The drying plants can use a lot of eggs.

Trucks Carry Poultry and Eggs

The back seat of the family car, trains, wagons, and all other forms of transportation combined haul less poultry products to market than do trucks, according to U. S. D. A. figures. About 65 per cent of the poultry and 39 per cent of the eggs are hauled to market in trucks.

Hold Up Egg Quality

By RALPH B. TREAT

Wooster, Ohio

Condensed from Poultry Tribune

DO you know how to tell the difference between a "city girl" and a "country girl?" Here's how. When the country raised girl fries an egg for breakfast, she cracks the egg on the rim of the iron skillet, opens its contents into the hot, sizzling pan, and proceeds with her work. Now, with the city raised girl, it is different. She gently cracks the egg, opens it into a dish, and inspects it carefully before she puts the egg into the skillet. Herein lies a story of vital importance to everyone concerned with egg quality.

Like charity, egg quality begins at home—on the farm. The poultryman, or others, cannot do much about improving the quality of the egg after it is laid, but much can be done to preserve the original quality. Eggs, like milk, are a perishable product and should be cared for accordingly. The conditions under which the egg has been kept have more to do with the grade than the actual age of the egg. Only by candling can one accurately determine the quality of an egg.

Since most eggs candle to the quality of U. S. Extras (Grade A) or better when laid, if, when the consumer gets them, they are of U. S. Standard (Grade B) or of U. S. Trade (Grade C) quality, it usually means that the care they have had has caused them to drop in quality. Our immediate problem is to get eggs to the consumers' kitchens of the quality that will create a desire for the use of more eggs in the diet. Increased consumption means better markets for the poultryman. Good farm care of eggs is the key to egg quality.

Proper Feeding is First Step

You ask how eggs of the quality of U. S. Extras can be produced? It is not difficult. If you are feeding a well balanced ration, you are progressing in the right direction. Oyster shell in the hopper is, of course, necessary for good egg shells; sometimes one has to add additional calcium in the mash. If this doesn't produce the desired results, check the cod liver oil content of your ration; one can easily add more to the grain or mash for good shells.

With spring coming on, birds on range are likely to consume too much green food, which may result in dark yolks or thin whites. One

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Poultry Tribune, May, 1941)

can guard against this by confining or yarding the layers throughout the entire year, and by not feeding green feed to the layers in excessive amounts – probably not more than 5 pounds daily per 100 birds. Of course, some factors of egg quality, such as shell texture, thin whites, and off-flavors, may be characteristic of certain hens. Others, such as size, are inherited.

Cool Eggs Quickly

Then, to maintain the quality, the first step is to get the natural animal heat out of the eggs as soon as possible. This means gathering at least three times every day. (Gathering often also reduces the number of broken eggs, and less cleaning will be necessary.) Most eggs are laid in the morning; therefore, the first gathering should be about 9:30 or 10 a.m., the second around noon, and the third late in the afternoon. Many poultrymen, of course, gather more than three times daily.

After gathering, the eggs must be taken to a suitable egg room. A corner of an underground basement, partitioned off with insulation board, with a tight-fitting door, and windows for ventilation, makes an ideal egg room. Since embryo development actually begins at 68 degrees Fahrenheit, the temperature should be under this level. Eggs held at near freezing temperature often do not candle into the grade of U. S. Extras. It is recommended that eggs for current fresh consumption be held in rooms not lower than 40 degrees Fahrenheit.

The natural heat seems to do far more damage to egg quality than does other heat; it is important that it be chilled out quickly to keep the white thick and jelly-like. If pails or wooden baskets are used in gathering eggs, lay the eggs out on a wire bottomed cooling tray, not more than one or two layers deep on the tray. Many poultrymen use wire baskets instead of laying the eggs out on trays; this is satisfactory if the baskets are not filled too full of eggs. Never place eggs in cases until they have cooled thoroughly, preferably over night. When casing, pack the eggs with the small ends or "points" down, and have the cases cool before filling them.

Plenty of Moisture Needed

To keep the eggs from drying out, with consequent enlarged air cells and thinner whites, the air in the egg room should be quite moist. An inexpensive humidity guide can be purchased, to measure the moisture, which should always be 70 to 80 per cent relative humidity. There are several ways moisture can be added to secure the desired results. The most common is to sprinkle the floor and walls of the egg room with an ordinary sprinkling can every morning and evening.

Burlap, kept moist by water dropping over it, is none too satisfactory on account of the mold developing in summer months. A much better method is to make a frame of hardware cloth, filling it with excelsior, then keeping it moist by dripping water and the use of an electric fan to evaporate the moisture into the air of the egg room. Others, who have an egg room with masonry walls and with water under pressure, use a fine spray nozzle to supply moisture.

Keep Eggs Clean

The third major point in producing U. S. Extras, which will hold their grade and reach the consumer with fine quality and flavor, is that of proper cleaning. Let's remember that all dirt and soil is "loaded" with bacteria, which can penetrate the shell. The cleaning problem starts in the laying house. There should be adequate nests and nesting materials. The perches should be screened, and the litter kept clean and dry. Frequent gathering will reduce breakage and reduce the cleaning problem.

More and more graded eggs are being sold every year. Grading rewards the better poultryman by providing premium prices for top grades. It takes the guesswork out of the picture for the distributors, and assures the consumers of a better and more uniform product. Federal standards maintain the same quality standards every month of the year and in every state of the Union. The appreciation of their advantages by the industry is evidenced by the wider use of these grades year by year.

Limit Chickens Per Acre

In order to maintain a satisfactory sod and supply of green feed, limit the number of growing chickens per acre to a reasonable number.

This usually will range between 200 and 400 per acre, depending upon the crop used and how well it is established.

If houses or range shelters are allowed to remain in the same spot all summer, the ground around it will become bare, regardless of what the range crop may be. Therefore, it is a wise practice to move the range shelters and brooder houses a few rods about three times during the summer.

There is some objection to moving when range shelters with wire floors are being used, but if the accumulation of droppings is hauled away promptly, the advantages of moving the shelter should outweigh any disadvantages.

—Poultry Tribune, May, 1941.

Poultry Population Declines

By PAUL F. WORCESTER

THE number of chickens on farms in United States declined 11 per cent from April 1, 1930 to April 1, 1940, according to the Bureau of Census. Twenty states showed increases in the number of chickens, but these gains were not enough to offset the sharp drop which occurred in important midwestern egg and poultry production areas.

The New England and Middle Atlantic states showed gains in chicken population, total egg production, and number of chickens raised, the only areas to show increases in all three. The South Atlantic region showed a sizable increase in number of chickens raised, which was directly related to the great increase in broiler production in that section. Several southern states had minor increases in the number of chickens raised, following the trend toward more diversified farming.

Farms with Poultry Decrease

The number of farms reporting poultry on hand April 1 decreased from 5,372,597 in 1930 to 5,150,055 in 1940. Greatest numerical decrease was in the West North Central states, where the number of farms reporting poultry declined by 63,716.

Egg production, taking the nation as a whole, decreased 11 per cent in the last decade. The greatest decreases were in the West North Central states and on the Pacific coast. The West North Central states showed a drop of 20 per cent, with Missouri, North Dakota, South Dakota and Kansas all showing decreases of more than 30 per cent.

Fewer Chickens Raised

Most striking change in the entire poultry picture is in the number of chickens raised in various geographic divisions. The U. S. decline in number raised in 1939 as compared to 1929 was about 2 per cent, but the growth in production of eastern chickens has nearly offset the national decrease. Delaware, for example, increased 418 per cent in chickens raised in 1939 over 1929. Connecticut poultrymen raised 123 per cent more chickens in 1939. New England production was up 53 per cent; Middle Atlantic, 10 per cent; and South Atlantic, 43 per cent.

Number of Chickens Raised

State and Geographic Division	Chickens 1939	Raised 1929	% Change
	(Thousands)		
United States	660,565	673,092	– 2
New England	25,290	16,501	+53
Middle Atlantic	58,520	53,153	+10
E. North Central	123,125	137,853	–11
W. North Central	167,246	198,437	–16
South Atlantic	101,659	70,948	+43
East South Central	53,615	54,740	– 2
West South Central	75,311	78,047	– 4
Mountain	18,341	21,087	–13
Pacific	37,455	42,320	–12

Poultry Population and Egg Production

State and Geographic Division	Chickens on Farms April 1 1940	1930	Per Cent Change	Chicken Eggs Produced 1939	1929
	(Thousands)			(Thousand Doz.)	
United States	**337,949**	**378,878**	**–11**	**2,391,091**	**2,689,719**
New England	**9,054**	**6,882**	**+31**	**93,502**	**63,102**
Maine	1,542	1,451	+ 6	16,044	13,737
New Hampshire	1,362	914	+49	14,520	8,536
Vermont	662	749	–12	5,669	6,679
Massachusetts	3,138	1,925	+63	33,737	18,102
Rhode Island	351	304	+15	3,240	2,468
Connecticut	1,997	1,536	+30	20,289	13,577
Middle Atlantic	**31,715**	**31,497**	**+ 1**	**269,688**	**253,507**
New York	11,190	11,953	– 6	97,212	97,026
New Jersey	5,388	4,096	+31	46,908	35,956
Pennsylvania	15,136	15,446	– 2	125,567	119,624
E. North Central	**67,306**	**77,683**	**–13**	**474,690**	**543,261**
Ohio	15,559	17,999	–14	114,969	135,990
Indiana	11,936	14,082	–15	83,222	103,539
Illinois	17,646	22,081	–20	112,943	136,829
Michigan	10,023	10,379	– 4	70,263	77,401
Wisconsin	12,139	13,139	– 8	93,291	89,500
W. North Central	**95,212**	**118,261**	**–19**	**622,027**	**778,028**
Minnesota	16,988	16,611	+ 2	119,414	107,304
Iowa	26,558	30,666	–13	168,204	188,335
Missouri	18,768	25,197	–26	124,586	180,349
North Dakota	3,601	4,794	–25	19,267	27,888
South Dakota	6,233	8,545	–27	34,791	53,052
Nebraska	10,568	13,317	–21	71,072	85,554
Kansas	12,493	19,127	–35	84,689	135,541
South Atlantic	**33,025**	**33,422**	**– 1**	**207,079**	**222,457**
Delaware	901	1,551	–42	6,182	11,200
Maryland	3,139	3,777	–17	22,780	27,709
District of Col.	18	12	+50	108	101
Virginia	6,995	7,643	– 8	50,075	55,349
West Virginia	3,377	3,673	– 8	22,722	27,929
North Carolina	7,315	6,384	+15	41,847	39,301
South Carolina	3,376	3,057	+10	17,234	15,907
Georgia	5,871	5,373	+ 9	31,615	30,533
Florida	2,029	1,949	+ 4	14,512	14,424
East South Central	**28,204**	**28,617**	**– 1**	**156,576**	**176,281**
Kentucky	8,184	8,919	– 8	45,371	53,960
Tennessee	8,013	8,888	–10	46,605	57,319
Alabama	5,951	5,428	+10	33,473	34,564
Mississippi	6,055	5,381	+12	31,126	30,435
West South Central	**41,343**	**43,254**	**– 4**	**278,286**	**296,459**
Arkansas	6,315	6,124	+ 3	38,594	39,129
Louisiana	4,181	4,133	+ 1	22,630	22,461
Oklahoma	9,047	11,470	–21	58,675	80,513
Texas	21,799	21,525	+ 1	158,385	154,354
Mountain	**10,796**	**12,372**	**–13**	**81,153**	**97,428**
Montana	1,795	2,117	–15	13,590	15,428
Idaho	1,966	1,989	– 1	14,724	16,399
Wyoming	681	735	– 7	4,938	5,777
Colorado	2,842	3,653	–22	19,250	27,343
New Mexico	936	961	– 3	6,104	6,790
Arizona	491	576	–15	3,789	5,081
Utah	1,878	2,095	–11	17,190	18,462
Nevada	204	243	–16	1,563	2,145
Pacific	**21,290**	**26,887**	**–21**	**208,087**	**259,193**
Washington	4,932	6,451	–24	50,917	71,429
Oregon	3,074	2,969	+ 4	27,483	28,343
California	13,282	17,467	–24	129,686	159,421

One Delaware county, Kent, little more than 35 miles wide and less than that long, raised 2,495,541 chickens in 1929. In 1939, Kent county poultrymen produced 16,372,181 chickens for an increase of 556 per cent. That's raising more than 7,000 chickens per square mile. The national average is less than 220 chickens raised per square mile.

66 Per Cent More Turkeys Raised

The 66 per cent increase in number of turkeys raised in 1939 as compared with 1929 marks the result of efforts to improve breeding, feeding, and management, and intensive consumer education. The largest volume of turkeys still comes from the West North Central, West South Central, Pacific, and Mountain states, but eastern producers are entering the field.

Number of Turkeys by Regions

State and Geographic Division	Turkeys Raised 1939	1929	% Change
	(Thousands)		
United States	27,933	16,794	+ 66
New England	481	172	+180
Middle Atlantic	1,046	373	+180
E. North Central	2,046	805	+154
W. North Central	9,795	4,150	+136
South Atlantic	1,734	1,489	+ 16
East South Central	495	767	− 36
West South Central	4,971	4,670	+ 6
Mountain	2,487	2,266	+ 10
Pacific	4,876	2,099	+132

Weeds Flavor Eggs

Keeping laying hens away from certain plants, and limiting the cottonseed meal in their diet, will prevent off colors and flavors in the eggs. If there is more than 5 per cent cottonseed meal in a hen's diet, the yolks of the eggs tend to become mottled after the eggs have been stored several months. The whites may take on a pink tinge. Cheese weed has a similar effect on egg white. Shepherds-purse and field pennycress may produce a green color in both the white and the yolk.

If chickens eat freely of strongly flavored feedstuff, it may cause an undesirable flavor in the eggs. Turnips, onions, garlic, and leeks are among the worst offenders. Some fish oils cause a fishy flavor, but oils of good quality have no undesirable effect on egg flavor if fed in moderate quantities.

Missouri Farmer, May 15, 1941.

AN EASTER egg which has been kept for 81 years in a covered water glass is owned by Mrs. George Lichty of York, Pa., according to newspaper reports. Mrs. Lichty's mother dyed the egg a dark brown and used a pin to etch the outlines of a church, trees, and a dancer on the egg's surface.

Broilers in Northwest Arkansas

By G. D. McCLASKEY
Topeka, Kansas

Condensed from U. S. Egg and Poultry Magazine

THE biggest industry in Northwest Arkansas is the growing of broilers. Formerly it was fruit, which is still a big industry, but broiler production has moved into first place. It is centered in two counties, Benton and Washington, where, in the heart of the playgrounds of the Ozarks—"The Land of a Million Smiles"—this year's crop of broilers is said to be approximately 12 million head. That's about 2 million more than the high production as given for any previous year.

Broiler Colonies Are "Hid Out"

Throughout this picturesque Ozark mountain region, the countryside is spotted with white chickens. But you don't see many of them along the highway—only a few thousand here and there. You have to go out into the rough country, by way of winding mountain roads, fording a stream now and then, to find, in half-hidden places, these millions of head of "family size" broilers, as they are termed by the Arkansas folks.

In locating these big broiler colonies, in valleys and on mountain sides, it is best to have someone with you who knows his way around. A person unacquainted with the territory would likely become lost and miss the largest broiler plants in the hills, even though there would be a colony of 20 to 30 thousand birds just on the other side of the ridge.

How the Industry Started

This whole enterprise has really developed during the last 10 years, but to get the complete history one has to go back to 1918 to learn how it started.

Back in the spring of 1918, Mrs. Earl Bagby of Cave Springs raised a few chickens to around 3 lbs. She sold them for 41 cents a pound. Everything else was correspondingly high, but that 41 cents a pound for frying chickens was just too much money to be passed up thereafter. So Mrs. Bagby and her husband raised broilers the next year. In 1920, Mrs. Bagby's father, J. J. Glover, also of Cave Springs, started broiler raising. Finding it profitable, he soon enlarged his operations. So from the start made by the Bagbys and the Glovers, the biggest industry in

From "Broilers are 'Big Business' in Northwest Kansas"
(U. S. Egg and Poultry Magazine, May, 1941)

Northwest Arkansas was developed.

Following the Bagby and J. J. Glover start, Lester Glover, Cave Springs' principal buyer and feed dealer, went into the broiler business. H. A. Boyd started in 1922. Hugh Webb of Pea Ridge was next, followed in 1925 by Claude Davis of Rogers. All of these folks became big producers. But the men recognized as today's "big five" are Jeff Brown and Charles George of Springdale, Charles Garrett of Rogers, Lester Glover of Cave Springs, and Gordon Knott of Bentonville.

12,000,000 Head for 1941

By 1933, the season's production in Benton county had reached about a million birds. By 1936, it had increased to 2 million. Production in Benton county moved upwards until 3 million head were produced in a season, and by that time farmers of Washington county, south of Benton, had become interested to the extent of producing around a million head that season.

Benton and Washington counties together marketed 7 million head in 1938, 4½ million of this total crop being produced in Benton county. Total production in 1940 was said to be about 10 million head, with an estimated production for 1941 of 12 million. And now the producing area is spreading eastward into Madison and Carroll counties, where the folks are boasting of at least 1½ million broilers this year.

"This broiler industry, like any other new enterprise," said one man who has experienced both success and failure, "has had its ups and downs, its failures, its heartaches, its disappointments. Many lost their shirts, but enough made money that the business got a firm toe-hold and advanced at great strides. It wasn't a bed of roses, but it was something of cash value the farmers could handle during that portion of the year when there isn't much of anything else to do. The year 1937 was a tough one. Feed prices were high and the broiler market was low, yet production showed an increase. Those who have stayed with it and have profited by the mistakes they made are doing all right."

The folks point out that the Arkansas Ozark region is one of the best, if not the most desirable region, in the entire country for producing ideal frying size chickens because of the mild climate, humidity, altitude, central location, excellent highways, and transportation facilities — in short, all-around natural conditions favoring chicken raising.

Year-'Round Enterprise

Northwest Arkansas broilers (some of them attain roaster size before they are sold) come onto the market before the general run of young chickens from midwestern farms starts moving. That is, most of them do. Since many of the growers are now producing a second crop, and even a third crop in a number of instances, each season, the later birds meet the competition of the movement from general farms all over the country. So there are times when these Arkansas birds do not command as high a price as is received when they are ready "out of season." The broiler growing season in the Arkansas region now extends from September to June. Encouragement is being given to making it a year-'round enterprise.

New buyers and new outlets are lending encouragement to year-'round production. Several poultry packers are now included among the buyers.

Members of the Chamber of Commerce are all worked up over wanting a large poultry packing plant in Rogers. They hold to the thought that such a plant would add to the stability of the broiler industry and, of course, would give Rogers a new business enterprise. But there is now a small dressing plant in Rogers. Two local young men, the Nelson brothers, began business last year. They are ice packing in barrels for shipment mainly to Chicago, labeling the product "Arkansas Flavor-Fed Broilers."

Entire Set-up Financed

This Arkansas broiler project is almost entirely a financed proposition. The first financing was on feed. The next step was on chicks. Now the financing covers just about everything a grower needs, including housing and equipment. Of course, there are some growers who do their own financing and pay as they go, but in the majority of cases everything is furnished. In these cases the growers pay interest on what they owe. Settlement is made when the chickens are sold.

Without this financing plan, there is some question whether the growing of broilers would have become the leading industry in Northwest Arkansas. Should by any chance the growers undertake hatching chicks, making feed, and handling their own marketing, it is likely they would still be financed, but with the financing done by the Federal Government instead of by local men.

Truck Shipments Largest

A wide demand for Northwest Arkansas broilers has been created. Springdale, and Rogers are the leading shipping points, but Fayetteville, Bentonville, and Gravette are also buying and loading centers. Most of the shipping is by truck, specially built trailers being used, but there is still some shipping by rail. Local produce firms handle the bulk of the shipping.

Chicago is the principal distributing point, but distributors in Milwaukee, Detroit, Springfield, and New Orleans are big buyers. In all, Northwest Arkansas broilers are now finding ready outlets in 10 states.

Broilers shipped into these 10 states in 1940 returned around $6,700,000 to the folks located in the northwest corner of Arkansas.

"Yes, it's a great industry, despite all its headaches," said an enthusiastic Rogersite. "It requires long hours, no end of worry, the sacrifice of many pleasures of leisure; it is a slave-driver; it is a greedy and selfish enterprise; it dictates to those who indulge in it—but it has been the saving of Northwest Arkansas when there seemingly was nothing else to turn to in the darker periods."

The darker periods referred to were those years of drouth when fruit crops failed, pastures dried up and about ruined the dairy industry, and when vegetables could not be raised for the canneries. It was during those darker periods that broiler production became the leading industry of the area.

Commercial Feeds Widely Used

What about feed, when in other sections of the country farmers quit poultry because of failure of grain crops? They don't produce enough grain in Northwest Arkansas to begin thinking about using home-grown grains. Commercial feeds of well-known brands are used and used in a big way.

Some one at the University of Arkansas, College of Agriculture, who seemingly delights in working on a thing of this kind, figured it all out. On the basis of the ten-million-bird crop in 1940, the feed required to produce the crop was 154,000,000 pounds. Last year's total feed bill was given as $3,280,000.

The college survey showed that feed is the biggest item of cost in growing broilers. Second high item of cost is chicks, and third is labor, listed at 1.79 cents per pound of bird, but broiler growers who do their own work do not include a labor charge in figuring cost of production. Then follows general expenses, such as fuel, medicine, disinfectant, litter, etc. Last is overhead, which includes interest, depreciation, taxes, repairs and insurance.

The grand total of expense, exclusive of labor, in producing 10 million 3½-lb. chickens, is given as about $4,800,000, leaving a profit of around $1,900,000 to be divided among the growers, the number of whom one man guessed as in the neighborhood of 5,000, and it was stated that was purely a guess. But on this guessing basis, the average 1940 net profit per grower was about $380. That doesn't seem like much money for so much work. But it's just that much money the growers wouldn't have if they did not indulge in broiler production.

Broiler Production Not Specialized

Broiler production is largely a branch of the type of diversified agriculture carried on in this region. There are some big-volume growers who make it their business, but in the majority of cases the broiler growers have other things to do in rounding out a year's activities. There is much white oak in the timber on the Ozark hills and mountains. That calls for numerous saw mills. Nearly everyone has some white oak timber to sell.

There are numerous fruit and vegetable packing plants in the territory. There are large wineries. There is a big plant in Springdale where grape and tomato juices are bottled. Then there's the dairy industry. Most farmers have some hogs and cure their own pork products.

When a man is interested in several of these agricultural activities and also produces a crop of broilers on which he makes a few hundred dollars, he figures he is doing right well with chickens, because when the broilers are grown during the winter, they are out of the way in time for spring plowing and planting, and the latter is out of the way by the time fruit is ready for harvest. So it goes through the year.

3½ Lb. Birds Most Profitable

Years of experience have shown the growers that the most profitable weight at which to sell is around 3½ lbs. per bird. No one wants to sell below the 3-lb. weight. The birds attain the desired weights in about 14 weeks. Only a few small broilers are sold. One day in January, two trucks rolled in from Birmingham, Ala. They were after 2-lb. birds. The men with the trucks spent two days contacting produce men and combing the hills before they had their loads. The growers just didn't want to sell those small birds, but when the trucks departed they carried 10,000 lbs. The only reason the drivers were able to get their trucks loaded is because they paid a price to get the birds.

1,500 New Brooder Houses

You cannot raise broilers without brooder houses, of which it is estimated there are around 7,500 in use in Benton and Washington counties. The houses range in size from 14 by 16 feet to 14 by 210. Until recently the growers built their brooder houses, inexpensive but entirely satisfactory. Many of the first houses are still in use. But now the lumber dealers are handling most of the brooder house construction.

It was said that about 1,500 new houses were built this year. One lumber firm is credited with building 700. These brooder houses cost from $40 to $250, depending upon the size and type of construction. There are far more of the 14 by 16 size than any other.

The government FHA setup, with which most of the lumber companies are working, is responsible for the large number of new brooder houses. The interest rate is 5 per cent.

Hatcheries in Benton and Wash-

ington counties have a combined capacity of 1,100,000 eggs. These hatcheries operate continuously about nine months each year. Most of the broilers grown are hatched locally, but about 50 per cent of the eggs that go into the incubators are shipped in from neighboring states. Some chicks are also shipped in. But each year the number of laying flocks in the broiler growing region shows a slight increase.

Only three kinds of chickens are grown for broilers. These are White Wyandottes, White Plymouth Rocks and Barred Plymouth Rocks. Until recently all of the broilers produced were white-feathered birds.

The agricultural college survey of 214 farms last year showed White Wyandottes to be in the lead in number of broiler broods, with 46.9 per cent. White Plymouth Rocks were in second place with 32 per cent, and 18.4 per cent were Barred Plymouth Rocks.

The Backyard Flock Returns

The poultry industry moves in cycles the same as other industries. Periods of depression follow periods of prosperity, but poultry recovers more rapidly because of the quickness and ease of getting in and out of the business. These cycles in the poultry industry are due to many causes, but the economic condition of supply and demand still remain one of the main contributing factors.

One of the most noticeable changes in the trend of the poultry industry this season will be the increased number of backyard flocks. This is a natural result of workers wishing to help defray the cost of their living by producing meat and eggs, in view of the increased prices that prevail now and that are sure to come next fall and winter.

In the last few years, the "back lotter" has gotten away from poultry flocks, gardens, and an occasional cow or pig. This has no doubt been due to the automobile. Time in caring for the flock was spent on the road, and money for feed was spent on gasoline. Little thought was given to a poultry flock as long as the family income was sufficient to meet the family budget, but now with fast occuring events we see a distinct trend back to backyard poultry keeping. With ever increasing taxation, higher food prices, and reasonably low feed prices, we may expect an increased number of backyard flocks as well as vegetable gardens, a cow, and a pig.

—R. A. Conolly, Michigan Farmer, May 24, 1941.

Dressed Poultry Sales Balance Hatchery Income

By PAUL CAIN

Reprinted from Hatchery Tribune

"WE'VE been in the hatchery business for 11 years and have always made money in it during the active season," said Henry Vogt, speaking for himself and his brother, Bud Vogt, operators of Vogt Brothers Poultry Farm in St. Charles, Mo. "However, we have to live 12 months a year, even if the hatchery season doesn't last that long, and several years ago we determined to

main building, the basement of which contains the hatchery. Conveniently located only a few blocks off one of the principal streets of St. Charles, and well heralded by newspaper advertising and handbill announcements, the front office of the firm soon became the center of poultry purchasing for the entire trade area, since the hatcherymen were in a position to furnish faster and better service than retail meat

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(Hatchery Tribune, April, 1941)

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So, in addition to a 50,000 capacity hatchery, the Vogt Brothers are now operating a wholesale and retail dressed poultry business, which turns an estimated 250,000 pounds a year, at an average price of 20 cents per pound, scaling up as high as 29 cents per pound in peak holiday seasons, and employing a personnel of 15 persons.

The Vogts' first step in adding the dressed poultry operation was to open a retail department in their main building, the basement of which contains the hatchery. Conveniently located only a few blocks off one of the principal streets of St. Charles, and well heralded by newspaper advertising and handbill announcements, the front office of the firm soon became the center of poultry purchasing for the entire trade area, since the hatcherymen were in a position to furnish faster and better service than retail meat or grocery outlets in the business district. This trade continued to expand. Now the Vogts furnish most of the dressed poultry bought in St. Charles, and, in addition, have successfully invaded the metropolitan market of nearby St. Louis, operating a retail store in University City, a well-to-do suburban area of the metropolis.

The success of the dressed poultry department is based on four major points — fast and competent mass-production handling in the preparation of the chickens, fast and accurate service to both dealers and consumers, quality produce, and building up an acceptance for Vogt poultry through the retail trade.

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Hatchery Tribune, April, 1941)

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INTENTIONAL 2ND EXPOSURE

The killing room in the large secondary building devoted to this phase of the business is equipped with completely modern apparatus, including an electric killer. Here the poultry is killed, semi-scalded, and wax dipped, to insure a thorough picking job, and to preserve the skin and appearance.

Completely dressed and drawn, chickens are first placed in a refrigerated compartment and chilled at about 30 degrees. From here they may go into the sharp freezer for complete freezing at zero or below, or they may be transferred to the refrigerator in the retail store in the main building for immediate retailing.

Production is carefully based on and geared to turnover, so no stock is left long on hand, and every bird is delivered in perfect preservation. For delivery to hotels, and especially roadhouses featuring chicken dinners, of which there are many in the St. Louis region, the poultry is first chilled and then quartered, chilling making the quartering job easier. The quarters are then packed in crates of whatever poundage has been ordered, frozen solid, and delivered by truck.

The Vogts' retail operations are a model of service and merchandising. When the retail store in University City was opened, it was well advertised in the local newspaper, and regular insertions in it and the St. Charles paper maintain the advertising support. Handbills were distributed throughout the shopping area, and housewives were invited to visit the new poultry store and receive an oven thermometer as an opening day favor.

Two trucks carry on a fast retail delivery service, both from the branch store and from the St. Charles headquarters. Specializing in chickens from 3½ to 4½ pounds, the Vogts' continual campaign to sell the public on Vogt poultry is carried on by delivering every chicken in a separate waxed cardboard carton, presenting an attractive appearance, and bearing the Vogt advertising message on the exterior.

Novel Grocery Tie-Up

Their procedure in working with grocers and dealers is unusual, and is very satisfactory in handling the wholesale business, which amounts to perhaps 25 per cent of the turnover in dressed poultry.

"Few groceries or meat stores are equipped with sufficient refrigeration to keep frozen poultry frozen," commented Henry Vogt. "It is not practical to deliver poultry which is merely chilled, and expect it to stay fresh for several days when kept at the relatively high temperature which is adequate for most meats. Consequently, we have a sort of 'drop shipment' service for the retail outlets which we service. They take their chicken orders in advance, and simply pick up their requirements here on their way to deliver them, or telephone their orders to us and we deliver them. Of course, on Saturdays most stores can estimate their turn-over and may stock enough birds for the day's needs, being certain that they will not have any left over."

Prices for dressed poultry are based primarily on the market, of course, and on a charge of 10 cents for dressing a springer, 15 cents for dressing a duck, and 20 cents for dressing a turkey. This charge is added in the case of an individual purchase at the headquarters store, where the chicken is purchased live by the customer and dressed to order. Prices are based on the undressed weight.

Receive Many Special Orders

"We get a good many large orders for organization picnics and that sort of thing," said Henry, "running to something like 250 chickens. We used to make a 5-cent charge for quartering, and still amortize this extra labor in the price, but on large orders of this sort, where the poultry is ordered quartered, we find it best to quote a straight pound price, as they seem to resent an add for quartering."

A typical month in the Vogt dressed poultry department was August, 1940, in which period the firm sold 6,619 dressed chickens, totaling some 22,000 pounds. Starting in October, a substantial portion of the business will be ducks, geese and turkeys, with a peak at the Christmas season.

Sell Graded Eggs

Eggs, too, are handled in the retail branch store. First put in simply to round out the line, the Vogt Brothers are finding that the egg turnover is steadily increasing. Current sales amount to about 2 cases daily and 6 cases on Saturday, eggs being sold in three qualities, graded by a grader.

"Nothing could be more logical than for a hatcheryman to retail dressed poultry between hatching seasons to bridge the gap," comment the partners. "Just as ice manufacturers sell ice in the summer to keep things cool, they sell coal in the winter to keep things warm, and we raise chicks in one season, and kill 'em in another, and, besides, the dressed poultry business is good the entire year round, though having its peak season, of course, during the hatchery's 'off' season."

❡ UNDER a law just passed by the New York State Legislature, a hunter is now liable to a court fine of $50 if he enters upon a farmer's property and accidentally kills any domesticated animal—from a hen up to a cow.

Feathers Tell a Story

By LOUIS PAUL GRAHAM

Condensed from American Poultry Journal

SOME of us, in the course of judging chickens over a period of years, instinctly classify each bird for ruggedness and health as soon as we have it in our hands. No need to see the slightly swollen eye or the canker in the throat. Just the very feel of the bird says it is "out of condition."

We can do more than that, too. We can tell quite accurately whether the bird was grown on range or in confinement. An examination of its feathers will indicate whether, during its growing period, it has been out of condition at any one time. Sound, well grown feathers indicate health and vigor. Feather faults are a sure indication of poor growth, feeding, confinement, or lack of vigor.

How to Read Feathers

Of course, we all know that a chicken which sits "humped up" or drags around with its feathers ruffled is sick. Anyone can tell that. Conversely, we are aware at once that the active hustling bird with sparkling eye and smooth close fitting plumage that feels firm and "oily to the touch" is in top health.

However, in between those two extremes are varying conditions of health of which examination of the feathers will tell a story.

We handle a bird and find feathers where, partway down their length, there is a cross bar as though it had been creased. When that bird was growing new feathers, and they were only out as far as the crease now shows, it had a cold or was otherwise out of condition. However, it recovered and finished feathering in satisfactory shape, yet the cross bar marks (or creases) on the feathers definitely indicate that at one time that bird had a set-back in development. On colored varieties, this cross-bar mark is easier to identify. It usually fades or changes the color pigment in the feather at that point. For instance, in buff or red birds, a lighter colored bar; in black birds, a purple bar or a shaded gray bar.

Healthy Feathers Are "Juicy"

Usually, where you find a number of feathers so cross-barred in a bird, it indicates "out of condition" at that point in its growth. A single feather (or a couple in the exact same area) may have resulted from a blow.

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, May, 1941)

What I call "juicy" elastic feathers are healthy feathers. They can be bent or curved without cracking. If they are brittle and crack easily, the bird wearing them was not any too well grown, or its feed was deficient, or the bird was raised in confinement.

Factors in Feathering

Then again, character and quality of feather indicate many things. We are finding more and more of this as fewer birds are raised on range and more in confinement. Narrow, brittle feathers, which crack easily, result from feed deficiencies or confinement rearing. This can happen to range reared pullets after several months' confinement in a laying house.

Crowding is another thing that affects feathering; too many birds in one house will show up in improper feather growth.

Over the years, feed technicians have done a wonderful job in composing mashes which supply nearly everything the growing bird or the laying hen needs either to grow or to lay, but they have yet to ascertain what it is birds on range pick up which accounts for their vibrant health, and then proceed to duplicate just the right amounts of it to add to our present highly efficient feeds.

Yes, condition of feathers is indeed an indication of condition and health. It is one of the chief things to watch in growing good chickens. Where the quality of feathers is not what it should be, it is an indication that something is wrong.

"Demoting" System of Culling

Lawrence Bufford and Son, a father and son farming partnership, make use of a "demoting" system in culling their hens, says Baird Snodgrass in Pacific Rural Press.

Right and left leg bands are used. Each hen is credited as being all right at the start of the laying season, so a band is put on her right leg. If she has resisted disease, has exhibited favorable egg-laying characteristics, and passes the longevity test, the band stays on her right leg, and she is put in a breeding pen. If, for any reason, something happens — even if the bird's previous history has been long and good, she is demoted. The band is taken off her right leg and placed on the left, and even though she may produce profitably for months, she is barred from use as a breeder.

POULTRY RESEARCH

Feeding Low Grade Grain

Grains of lower grades were not productive of as good results as higher grades fed to laying flocks, according to observations recorded in the 52nd Annual Report of the South Dakota Experiment Station. The term "grade" refers to market quality. No diseased or moldy grains were used in this study.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Vitamin A Needs of Laying Hens

Mortality was lowest and production was highest in pens receiving the highest level of vitamin A among birds being fed in a test to determine vitamin A requirements of laying hens, report Cecil F. McClary, Gordon E. Bearse, and V. L. Miller of the Western Washington Experiment Station in that station's 1939-40 report.

Molasses By-Product in Chick Starting Rations

In trials involving 2,074 chicks, it was found that a product resulting from the fermentation of molasses to produce alcohol can be used as 2.5 per cent of a chick ration, replacing an equal amount of whey powder in the starting mash, providing it is at least equal to whey in vitamin G potency, report Gordon E. Bearse, Cecil F. McClary, and V. L. Miller in Western Washington Experiment Station's 1939-40 report.

A slight depression in growth of chicks at two weeks of age on a diet containing 4 per cent of the product was not noticeable at four weeks of age, and may have been due to excessive amounts of minerals in the product (30 per cent ash), or a lower vitamin G content than the whey for which it was substituted.

Hen's Diet and Chick Weight

Chicks hatched from eggs laid by hens fed low levels of protein were larger, and the chicks from hens fed high protein levels were smaller, than would be expected on the basis of egg size, report Robert Penquite and T. T. Milby of the Oklahoma Agricultural Experiment Station in Poultry Science (Vol. 20, No. 3).

About 12 per cent of the variation in chick weight at hatching is due to factors other than variation in egg weight.

Poults' Vitamin D Requirements

John C. Hammond, U. S. Bureau of Animal Industry, found that 80

A.O.A.C. chick units of vitamin D per 100 grams of feed (supplied by reference cod liver oil, fortified cod liver oil, or activated animal provitamin D) satisfy the requirements of growing poults. (Poultry Science Vol. 20, No. 3).

Rye for Laying Hens

Rye, constituting 10 per cent of the total feed consumed by layers, did not have an unfavorable effect as regards number of eggs produced under the conditions prevailing in a series of tests carried out at the Wyoming Experiment Station. (50th Annual Report, Wyo. Exp. Sta.)

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Value of Pea Meal

The supplementary value of pea meal to a basal ration already containing 8 per cent protein is about 50 per cent of the supplementary value of casein, conclude J. W. Cook and E. I. Robertson of the Washington Agricultural Experiment Station in Poultry Science (Vol. 20, No. 3).

Feeding Methods for Layers

Feeding of all the ingredients of a satisfactory ration for laying hens (grain, grit, mash, and shell) together proved satisfactory for caged birds in a test by Cecil F. McClary, V. L. Miller, and Gordon E. Bearse, which is recorded in Western Washington Experiment Station's 1939-40 report. The investigators caution poultrymen that the method may not be satisfactory under floor management, as the litter becomes packed, and may not dry out as well as when grain is fed in the litter.

Feeder and Waterer Arrangement

The arrangement of feeders and waterers had no effect upon production, feed consumption, or hatchability. In 33 separate trials, various arrangements of the feeding and watering utensils were studied. Hopper outside, waterer inside the house; hopper and waterer inside; hopper and waterer outside; hopper and waterer 4, 12, and 24 inches from the floor, and so forth. (Oklahoma Experiment Station, Biennial Report, 1939-40).

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Heart Rate of Chickens

The average heart rate for 12 R. I. Reds and 12 S. C. White Leghorns (half male and half female), was found to be 282 beats per minute during the day, reports E. H. McNally of the U. S. D. A. in Poultry Science (Vol. 20, No. 3).

Heart rates varied from a low of 192 in a R. I. Red male to 396 in a White Leghorn female. A correlation was found between body weight and heart rate which appears to be more significant than either breed or sex differences. Heavy birds show a slower heart rate.

Fowl Pox and Wet Litter

Fowl pox spread more rapidly and more birds were affected in pens in which the litter was allowed to become very wet (cleaned every 28 days) than it did in pens where the litter was kept dry (cleaned every day or every 7 days), say C. E. Sawyer and C. M. Hamilton in Western Washington Experiment Station's 1939-40 report.

Coccidiosis and Wet Litter

Allowing straw litter to remain in a house after it has become wet and contaminated is a dangerous practice, conclude C. E. Sawyer and C. M. Hamilton, in the Western Washington Experiment Station's 1939-40 report. In a test to determine the effect of frequent changing of litter on the incidence of coccidiosis in the laying house, the investigators found that only when the litter became wet did coccidiosis cause mortality.

Perosis in Turkeys

Choline was found to promote growth and prevent perosis in turkeys on a diet containing an adequate level of managanese, a preparation of lecithin from egg yolk had a similar effect, and soybean meal and sardine meal were found to be good sources of the antiperotic substance, in tests carried on by Thomas H. Jukes at the University of California, reported in Poultry Science (Vol. 20, No. 3).

Pullorum Transmissibility

Pullorum-free hens mated to males which gave a positive reaction to the agglutination test remained negative to the test, and neither cultures of various body organs of hens that died, chicks hatched from eggs laid by the hens, nor nonhatching eggs from those hens gave a positive reaction to the test, report C. E. Sawyer and C. M. Hamilton in Western Washington Experiment Station's 1939-40 report.

Artificial Light Studies

Artificial light stimulates the sexual activity of male starlings. The evidence confirms observations by P. H. Margolf, Pennsylvania Experiment Station, who found that better hatching results are obtained when male turkeys are exposed to lights at least four weeks before the lights are turned on the females.

The work on starlings by J. W. Burger (Journal of Experimental Zoology, Vol. 83, No. 3), suggests that possibly the effect of lights on males can be increased by longer exposure and, perhaps, brighter lights. It appears that the daily lighting, including natural daylight,

must be in excess of 12½ hours in order to be very effective.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Control of Infectious Coryza

Experimentally, sulfathiazole is highly effective in preventing the development of clinical symptoms of infectious coryza when given at the rate of 1, ½, and ¼ grams per ounce of feed. One eighth gram per ounce of feed would appear to be borderline in value, as mild symptoms may be noted in some birds fed at this level. When fed in the manner described, the drug does not appear to be toxic, nor to affect the egg production of laying birds. No taste or flavor of the drug could be detected in the flesh or eggs of birds fed these levels.

Sulfathiazole does not destroy all of the organisms; it merely retards their development as, experimentally, infected birds develop symptoms of the disease after the discontinuation of the drug, even after having been given the material over a two or three week period.

The fact that all of the organisms are not destroyed does not mean that sulfathiazole has no value as a preventative, as long as this factor is appreciated.

Sulfathiazole has marked curative value when given at 1, ½, and ¼ grams per ounce of feed; or when administered individually to birds unable to eat properly. Marked recovery is evident within 24 to 48 hours following the treatment.

The blood from birds fed sulfathiazole at the various levels fails to support growth, or supports only limited growth when used for cultural purposes.

From a blood chemical standpoint, the concentration of the drug is for all practical purposes proportional to the amount used. These blood concentrations are more stable when the birds have feed in contrast to fasted birds.

The fact that the preparation has both preventative and curative properties indicates that it can be used to good advantage for the control of this disease, but that its use will have to be under the guidance of the pathologist for most effectiveness and efficiency.

—Report by J. P. Delaplane, R. I. Agr. Expt. Sta., at the Northeastern States Pullorum Research Conference, May 22-24, 1941.

EGGS replaced the typical bouquet when Mrs. Weeks, Mayoress of Ryde, Isle of Wight, opened a church bazaar. Replacing the customary little girl with her posies, a church warden stepped forward and handed Mrs. Weeks a basket of new-laid eggs, which are not only a delicacy, but a rarity in England these days.

Suggestions on Coccidiosis Control

By T. S. TOWNSLEY

Reprinted from Smith's Chickagrams

IN many flocks coccidiosis is now the No. 1 poultry disease, and more cull chicks probably result from coccidiosis infection than from any other cause.

There apparently is very little possibility of keeping chicks free from coccidiosis since the oocysts are widely distributed in nature and are very resistant to disinfection. Research workers report that oocysts are often present in drinking water and are commonly found on feed bags and on utensils used in the poultry yard as well as being very easily carried on the feet and possibly on the clothing of the workers who visit the brooder house.

Prevent Epidemics

The logical approach to coccidiosis control appears to be, therefore, not in trying to keep the birds entirely free from infection, but to so handle the flock that infections will not become epidemic.

There is, of course, no object in needlessly exposing chicks to heavy infections of coccidiosis, and, therefore, the commonly recommended practices of thoroughly cleaning the brooder house before the chicks are started and locating the house on clean soil are just good common-sense precautions against coccidiosis outbreaks. In the same way, keeping young chicks entirely separate from older birds is also a sensible precaution because a very large number of the older birds are coccidiosis carriers and are likely to spread infection through the droppings.

Develop Resistance

There are two, and possibly three, important points to keep in mind in controlling coccidiosis. One is that normal chicks under good brooding conditions will develop a considerable degree of resistance to coccidiosis if a limited amount of infection is picked up early during the brooding period. For this reason it is advisable to give the chicks range on the ground area to be used during brooding by the time they are 2 weeks old so that they can become acclimated to their surroundings at an early age. There appears to be much less danger of serious coccidiosis loss if chicks are given outdoor range by the time they are two weeks old even though the soil may carry a moderate amount of infection than if the birds are kept under scrupulous sanitary conditions for four to six weeks by the use of wire floors or other devices of that sort, and then are given access to the infested range.

The Smith Incubator Company, Bucyrus, Ohio
(Smith's Chickagrams, May, 1941)

Clean Frequently

An especially important part in coccidiosis control is that several days are required for the oocysts to become infectious after they are eliminated from a sick bird, and careful cleaning of the brooder house at five-day intervals will break the chain of infection and go a long way toward preventing serious outbreaks in the brooder house. Along with frequent cleaning should go a consistent effort to keep the brooder house dry, because heat and moisture are the two conditions that cause coccidiosis to become infectious.

The third factor in coccidiosis control is proper feeding. Unfortunately, there is not as general agreement on this point as on the previous two, but there is considerable evidence that both the kind of feed and the method of feeding may have an important influence on coccidiosis control.

A few products are generally credited with being valuable in helping birds to throw off the effects of coccidiosis infection, and either liquid milk or the condensed types of milk seem to be especially effective.

There appears to be some evidence that feeding an all-mash ration, particularly a highly concentrated ration, makes chicks more subject to coccidiosis damage; and the feeding of a liberal proportion of cracked grain along with the all-mash seems to result in birds better able to withstand coccidiosis attacks.

Some very good poultrymen are also of the opinion that keeping the birds continually stuffed is a predisposing condition for serious coccidiosis losses, and some of the best growers now follow the practice of controlled feeding so that the birds are without feed for a part of each day so that their intestines are not continually stuffed. The common practice among some of the most successful chick raisers is to feed enough mash in the morning to last the birds until about noon, and then to allow the troughs to go empty until the middle of the afternoon, when they are given a feed of grain sufficient to last them until evening.

4 to 12 Weeks is Dangerous Age

A careful watch should be kept of chicks from about 4 weeks to 12 weeks of age, when they are especially subject to coccidiosis, and at the first indication of certain chicks becoming seriously infected, these chicks should be immediately removed and either killed or completely isolated from the rest of the flocks.

There is a good deal of evidence that departure from simple, sensible methods of chick handling have a great deal to do with serious outbreaks of coccidiosis and probably the best preventive of serious trouble is to follow the few general precautions of brooding on clean range; keeping the chicks separated from older birds; cleaning the brooder house at very frequent intervals; keeping the brooding quarters dry; feeding a ration that contains a liberal proportion of grain; and not overstuffing the birds. On thousands of farms, where these precautions are followed regularly, coccidiosis never has been a problem, and commercial plants are following the same plan with few losses.

Incubator Sanitation

Many poultrymen are in the midst of their hatching season. In the production of healthy chicks, incubator hygiene plays an important role. Frequently those who operate an incubator will start the season with a clean and disinfected machine, but as the season progresses, less attention is given to cleaning and disinfection with the result that trouble may arise from disease producing organisms.

The practice of removing chick down and droppings, egg shells, and broken egg contents from all accessible parts of the machine, followed by proper fumigation with formaldehyde gas after each hatch, is regarded a ssound. It is highly advisable to fumigate all eggs before they reach the hatching stage. Disease producing organisms may be carried on the surface of the egg.

The cleaning and disinfection process must not be confined only to the incubator. The incubator room also should be maintained in a tidy condition and an ample amount of disinfectant should be used to destroy disease producing organisms.

Proper sanitation in the incubator and its surroundings should produce disease free chicks if they have been hatched from pullorum free eggs. To prevent the introduction of disease into the young stock, the flock owner should adopt measures to avoid spread of disease producing organisms from the adult to the young stock. Adult flocks which have or have had infectious bronchitis should be considered a definite source of danger to young chicks. Infectious bronchitis virus spreads very readily, and may cause severe losses among young chicks. However, the virus is destroyed through fumigation, which permits one to hatch chicks free of this infection.

For information concerning incubator fumigation, follow the directions that accompany the incubator.

—Featheredfax.

Individual Feeding of Chickens

By C. H. KOONZ

Condensed from U. S. Egg and Poultry Magazine

IT is well known that poultry operators who make a practice of feeding very frequently have difficulty in showing profitable results. Often this problem is one of consumption of feed on the part of the bird. If birds consume the maximum amount of feed they have the capacity to handle and utilize, satisfactory gains would almost be guaranteed. It is quite certain that these gains would be profitable on the shorter feeding periods. One method of being assured that birds do consume sufficient feed is to administer such feed to the individual birds by a mechanical means. This method of feeding has been called "cramming," but subsequently will be referred to here as the individual method of feeding.

Reports from Europe reveal that this method of feeding is designed to increase consumption of feed per bird in those cases where decreased consumption has slowed down the fattening process before the desired quality has been reached. By this method, the birds are individually handled and fed by means of a rubber tube which conducts feed through the mouth down the esophagus and into the crop.

In describing the use of this method of feeding in Europe, Pierce (1926) states that "this process under first impression might appear cruel, but, when handled by skillful operators, it seems to meet with the entire approval of the chickens receiving the treatment. After they have been on feed for two or three days, they become as anxious for the feed from the machines as they do when fed in the crates."

Is It Unethical?

Inasmuch as the period of feeding in the European countries is one or more weeks, there has been no question regarding the ethics of the method, and the word "cramming" has not carried the inference of illegally stuffing the intestines with feed to be sold later at the price of poultry. Since, in some instances, the individual feeding method in the United States has been identified with a much shorter feeding period, there has arisen immediately the question of the ethics of feeding poultry in this manner. It is the general opinion that any practice that would leave excessive feed in the intestinal tract to be included in the weight of a dressed bird would be illegal and unethical.

In considering the question of

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, April, 1941)

ethics, of primary concern was the individual feed given one to several hours before dressing the bird. It was felt that it was this feed that was most susceptible to criticism. If cramming does not occur following this single feed, it appears that cramming will not occur after a series of individual feeds.

Feeding Experiments

In experiments of this nature, there is always the important problem of determining the proper controls to be used. The birds selected for controls were vigorous eaters, capable of consuming maximum feed, and, hence, capable of showing adequate gains. This type of bird was considered a normal bird and, consequently, the most suitable control.

A principal purpose of the present study was to determine if, under practical operating conditions, individual feeding could cause more than a normal amount of feed to be deposited in the intestine of the bird at time of slaughter. Consequently, experiments were conducted in which birds were individually given a "full crop" with the short tube machine and killed 1 hour, 1½ hours, 2 hours, 3 hours, 4 hours, 5 hours, and 16 hours later. The weights of the intestinal tracts were individually determined to the nearest gram. Similar weights were secured on the proper controls.

Results of various tests prove conclusively that individual feeding did not cause the gizzard or the intestine to become "stuffed" with feed.

Results as Expected

There is nothing unusual or amazing about this conclusion. It is what is to be expected in view of the anatomy of the alimentary tract of the bird.

The crop is capable of great distention. It consists of four coats or layers of tissue and, consequently, is strong. It is provided with powerful muscles. It is capable of contraction; consequently food is passed on into the proventriculus and gizzard in small quantities.

It is a common observation among feeders that it takes a number of hours for a full crop to be emptied. When using the individual method of feeding, the more mature birds need be fed only twice each day, because it takes about this length of time for two full crops to be emptied. Additional feeds are not only a dissipation of labor, but harmful to the best results. The crop does not discharge its feed all at one time into the intestines, and an act of this type would be necessary if cramming followed.

Crop is a Storehouse

B. F. Kaupp (1918), in his book entitled "The Anatomy of the Domestic Fowl," states that "the crop is a storehouse for the food during the hours of feeding, the food when needed by the stomach being gradually discharged from the crop by the contraction of its muscular walls." Consequently, for practical considerations, it does not make a partical of difference whether a full crop is obtained by normal consumption of feed or if it is secured by mechanical means.

A large number of feeding tests have been conducted, using every type of bird to ascertain the value of individual feeding and to determine the part that it may play in a feeding program. Results of these tests are consistent with the conclusion that, when dealing with vigorous eaters, individual feeding does not result in cramming in the sense that the intestine is overloaded with feed to be sold later at the price of poultry. This is clearly demonstrated in tests where vigorous birds are given a single individual feed 4 to 5 hours before being killed.

There is no consistent difference between the control lots and the lots receiving the individual feed in any given experiment. This means that, if birds are vigorous eaters, nothing is to be gained by using the individual method. If individual feeding resulted in cramming, it follows that there should be a consistent advantage in yields in favor of the individually fed lots. This, however, was not the case, and it again becomes apparent that individual feeding did not result in cramming. This not only holds true for the single individual feed, but is also true when vigorous eating birds are fed exclusively by the individual method for a number of days.

Gains in poultry are, in general, dependent upon the amount of solids consumed. Particularly on short feeding periods, it is important for maximum gains that birds consume the maximum amount of feed they can handle. In terms of gains, it does not make any difference whether this feed is given by the individual method or whether it is

TABLE I—Results obtained by the individual method when feeding slow eaters compared with trough feeding this type of bird

Description of bird	Method of feeding	No. of birds	Days on feed	Live wgt. to feed	Dressed weight	Yield
H. springs	Trough	80	2	474	423	89.2
H. springs	Individual	80	2	464	432	93.1
H. springs	Trough	40	3	238	213	89.5
H. springs	Individual	41	3	243	227	93.4
M. springs	Trough	41	4	136	130	95.6
M. springs	Individual	41	4	132	130	98.5
Leg. springs	Trough	50	4	137	131	95.6
Leg. springs	Individual	50	4	144	142	98.6
H. springs	Trough	32	3	157½	144½	91.7
H. springs	Individual	32	3	154	147½	95.7

consumed in the normal manner.

The results of many tests have shown that the individual method does improve gains and quality in lots of birds where there is inadequate consumption of feed. Consequently, this method is of considerable value when dealing with hesitant or slow eating birds. In dealing with this type of poultry, of which heavy springs are very characteristic, it has been thoroughly demonstrated that the individual method is beneficial.

Table I summarizes the results of a few experiments using the individual method of feeding where slow eaters were prevalent in varying numbers. It will be noted that the individually fed birds showed a gain advantage and identified with these birds was also a quality advantage. These birds showed better gains than the controls because they consumed more feed.

Eggs as a Staple Commodity

Fragile as eggs are, they have long been a staple article of commerce and have helped the farmer purchase other needed foods and manufactured goods. More than 1,000 years ago, country people paid their taxes by supplying imperial households with eggs. Drying, picking, and storage of eggs in various materials have been practiced for many centuries. It is only in the last 50 years, however, that selection, packing, transportation, and cold storage have been perfected to a degree warranting development of the egg trade into a commercial enterprise of the first rank.

—C. C. Warren in "Eggs and Egg Products," U. S. D. A. Circular 583.

Aluminum Priority May Hit Poultrymen

Reports from Washington, D. C., indicate there are strong possibilities that poultrymen may feel the effects of the defense needs for aluminum through a shortage of the metal for use in aluminum paint and aluminum castings for brooders and incubators. Approximately 200,000 pounds of high-grade aluminum go into such types of poultry equipment every year, according to A. Randall Sandford in Nulaid News, May, 1941.

There is little need of concern over a possible shortage of aluminum for leg bands and wing bands, however, as a lower grade of aluminum is used in their manufacture.

Diary of a Poultryman

By P. S. WHITE

Wayne County, Ohio

June 1—"So rare as a day in June." Well, it was just that rare, and a little rarer still, today, for there was no mortality. Maybe the tide is turning, at least I hope so. Last night Harold put up a new incinerator, this stove being solid cast iron. The old incinerator stove wore out. It got white hot so many times that it disintegrated.

June 3—I will have to do a job of cleaning on the tin can stove in No. 1. For some reason or other, this stove accumulates soot. Then the soot falls down on the flames and "outens" it. This happened again this evening, the second time within the past few days. But the Old Man is a cagey bird now. One flash of fire in the face is enough for a lifetime. I lit the stove and stood back. It flashed—clean to the ceiling. Then smoke poured out of the stack like a battle ship.

June 4 — Back on the job again, that's the old varmint. It is the way it goes every year. Just about the time I get a bunch of chicks started along the right path, along comes some kind of a disaster to put a crimp in the whole works. Last night when I put the chicks to bed I found a dead one with the head eaten. Donnie White and I put the crimp in the rat, for we had him in the trap at midnight. Yes, it was a rat that did the dirty work, and he is in the incinerator now.

June 5—Grandma Silvers wanted to sell some corn, so I have been hauling most of the day. I take it in town to have it shelled, for time is too valuable just now for us to shell it at home. Our long suit is to shell corn in the winter when the weather is bad. Speaking of long suits, if this kind of weather keeps up, long suits are not going to be long suits for me. In other words, I am going to molt.

June 6 — I have visions, yes, visions of wading around here in blood knee deep. To break the sweet monotony, there was a dead chick, a cockerel, this morning. Then I saw a few bloody droppings. Old Coxy is evidently getting ready to go on the rampage. I suppose this will be followed by an army of worms, summer colds, and what have you.

June 7—I don't call a cloudburst a "local shower," but that is what we had this afternoon, according to

Unpublished material prepared for Everybodys Poultry Magazine, Hanover, Pa.

the weather man. His prognostication of rain was correct, but he was slightly confused as to terms. The storm broke while we were eating dinner and after gulping some food, Donnie and I rushed forth. Fortunately, there were no chicks drowned, but five of the nine stoves were extinguished. I think the fires were drowned out by rain seeping down the stacks. There was a half inch of water in the bottom of the stoves. I didn't have any trouble in relighting any of them with the exception of No. 3. It was ten times worse than all the rest combined. The overflow had become clogged. This caused the water to be so deep as to close the air intake. Naturally, the stove wouldn't start. A few brisk strokes with the tire pump and everything was hunky-dory. But oil and soot around the finger nails stay put a long time.

June 8—Befo' day, that is what it takes to get chicks out doors in order to prevent mischief from getting started. All feed and water has been moved out doors, which means that it is a dangerous thing to keep them shut in very much after daybreak. What it takes to get them outside the Old Man has, but, to be perfectly frank about it, I have to take a nap every day after dinner.

June 10—Last Friday the lightning struck the telephone wires, burning out the main cable between here and town. They have been working on it, so it was reported, but this morning there was no service, and I needed chick feed. I just had to have it quick. The nearest working phone was in town, so I made a special trip to the warehouse.

June 11 — Stormy weather. Two cloudbursts today with plenty of electrical display. Fortunately, the lightning didn't hit anything in this vicinity. I carry wind, storm, fire and lightning insurance on all buildings, but the only damage I have ever had was when the wind blew off a section of a roof.

Watering the chicks is an easy task; there just isn't any watering to do. There is water everywhere. While it disappears quickly, another storm comes along and there is twice as much as there was before. I have never seen a bird yet that would not rather drink from a puddle than a gold-plated drinking vessel. Not that any of my birds drink from a golden vessel, but they seem to like a good puddle regardless of pestilence contained therein. Such is the life of a chicken.

June 12—I am beginning to get somewhat blue. There was another hard storm at dinner time. We have had heavy rains for so many days that I have lost all track of them. It is hot, sultry and wet, ideal conditions for well nigh anything to break loose. I maintain a low fire in all the houses. In case the chicks get wet they can dry quickly. Then they rush out doors and get wet again.

During the past few days, Harold has been scything grass along the drives and among the plantings. Between times, Donnie and I have been forking it around the plantings for mulch. I am strong for mulching trees and shrubs. It keeps the roots cool and damp, promoting growth.

June 13—Troubles—I am infested with troubles. If it isn't this it is that. Today, there was an epidemic of stove troubles, soot, and other corruption in the smoke stacks. I never knew before that a 6-inch smoke stack could become completely choked with a tar-like soot. The stove in No. 3 has been torn down, cleaned and reset, not once, but twice. No. 1 has had 2 gallons of soot taken from the stack, and it still behaves badly. I suppose we will have to give it a thorough cleaning too.

June 15—I have never seen anything like these rain storms we are having. Today, all indications pointed to no rain. An hour ago the skies were still clear, but now there is as much water on the range as ever. So far, I can't see that Old Coxy has made much progress, but I realize that the season is still young.

There were two bunches of feathers on a couple of stumps in the woods. All indications pointed to a hawk or crow. The feathers were weathered, so it evidently happened several days ago. When water goes over the dam, it is gone. My only hope is that it doesn't continue to flow in the form of 6 weeks old pullets. The loss of a few cockerels is small change, but the pullets are a different story.

June 17 — It certainly pays big dividends to keep one's motor vehicles in good condition. Several people have asked me if I bought a new truck. For some reason or other, folks seem to think a chicken man rolls in money. Those of my friends who knew that the truck had been shampooed and waxed complimented me on the condition of it; good advertising too.

June 19—This is the first day in about three weeks that it hasn't rained. The range is beginning to dry and chicks are out sunning themselves. We need plenty of hot sunshine so they can store up vitamins, and also to kill a few coccidia. I see a few bloody droppings around, but what puzzles me so is that there isn't more. There were no dead chicks today, although there are a few that have both feet in the incinerator. So far, I think I have come through the wet spell in good shape.

June 20 — I am beginning to get slightly peeved. Last night one of the tin-can oil-burning brooder stoves carboned up. At least, I think it was "up" for there was soot to the top of the smoke stack. Of course, the fire went out. But this didn't stop the thermostat from percolating. As a result, all of the oil in the tank was lost. Well, Harold cleaned the stove, tore the whole works down, and reset it. Then when he lit it again, the house almost burned, too. The flame finally settled and everything was Jake. A few minutes ago I went out to look in on the chicks and smoke was pouring out of the stack like a battleship.

June 21—I knew that my time was coming sometime, and it came today. The No. 6 brooder house burned—not down but it was damaged. There was a hole in the floor big enough for an elephant to pass through without too much squeezing. I don't know what happened to cause it, but I do know if Harold hadn't seen it when he did, 500 sexed pullets would be homeless tonight. I have learned a lesson. Two hundred gallons of top grade kerosene were brought out today. It costs more than fuel oil, but it will be lots cheaper in the long run.

June 22—Cleaning boards, mowing grass, feeding, watering, painting, varnishing, packing eggs — all these comprised the day's work. A series of projects were all completed. The ranch is slicked up to a fare-ye-well. There were no smoked-up stoves to take the joy out of life. The kerosene burned like nobody's business, and it was the first time in several days that there wasn't a stove to clean.

June 24 — There is a limit to all things; a straw will break a camel's back; my patience has been exhausted. All the oil-burning tin-can brooder stoves have been given a thorough cleaning. The kerosene burns much better than fuel oil, but there was too much corruption in the stoves left over from the fuel oil for the kerosene to function properly. It was a job to clean them, but Harold is getting to be an expert on oil stoves.

Some kind of a varmint is catching the chicks. No. 6 house is sexed pullets, and the loss of one is indeed a loss. This particular varmint deliberately plucks the feathers, eats the head and probably some of the flesh. Donnie has set two bear traps tying a dead chick to the trigger pan. We shall see what we shall see.

June 25—It worked. A little after sun-up, I went out to see what, if anything, was in the traps. When quite a distance away, I saw something flopping around on the ground. A casual glance showed that there was a hawk in the trap. And he was fighting too, but a gentle tap on the head as a reminder of past deeds put the quietness on all future activities. He is hanging from a pole on the range as a warning to whomever it may concern.

June 27—Trapping is on the up and up. Donnie picked up a very nice varmint in one of his traps this morning. When such game is protected by law, one doesn't shout from the house tops that one is trapping. The best thing to do is to put such stock in the incinerator and act dumb. A dumb chicken man like me is not supposed to know anything, nohow. If varmints hang around the ranch, we trap them as a nuisance. I had 300 cockerels on today's auction, and this ought to cut down on the feed bill a wee bit.

June 28—A cloudburst this morning before sun-up. I took advantage of the occasion and put out a fresh shave and a bath. Towards noon, the sun came out, and I high balled the eggs to town. The broilers did better than I had expected, averaging 16½ cents a pound. Next week's live auction will be held on Monday, as the Fourth is Thursday. I think I had better sell a few more coops and get the young gentlemen off my feed.

June 29 — No rain today. The range is drying to some extent. It is still about as wet as some hay I have seen which was mowed the first part of the week. The hay is still wet, and so is the range, but here is hoping. All the range hoppers have been moved to fresh ground. In some cases this was only a few feet away, but comparatively fresh when compared with all the corruption at the old location. We are trying to do all that we can to keep coxy in control.

Moving Turkey Feeders

The smart turkey feeder moves his feed hoppers at least once every day. He may not move them far, sometimes 2 feet is enough, but he moves them. The idea back of this is pure sanitation. No trough has yet been invented that entirely eliminates dribbling. A turkey fills his mouth with mash, grain, or pellets and as he walks away spills some of it. If the trough is left in the same place, these dribblings accumulate until the turkeys start in picking up the waste feed on the ground. Naturally, this feed is mixed with soil, with droppings, and what have you. Sick turkeys are bound to result if there is any disease in the flock. It is just good flock insurance to move those feeders the first thing every morning.

—Norbest Turkey News, May, 1941.

VIEWS OF THE EDITORS

Needed Assurance

The announcement that markets for hogs, dairy products, poultry products, tomatoes, and certain dried fruits and vegetables would be supported by government buying has had some effect on prices. Guaranteed prices of hogs, butter and eggs are not far from Chicago market basis at this time, and the buying is not yet organized. Conferences reveal that increases of about 10,000,000 cases of eggs and 15,000,000 cases of tomatoes will be wanted, as well as untold quantities of cheese, condensed milk, pork, lard, fruits and vegetables canned or dried. Farmers are being advised by the Department of Agriculture to produce more of these things, and the Department is requesting agricultural extension forces to advocate increased production of them. Poultrymen are urged to hold all layers and feed for egg production, to invest in chicks, and to fill their layer houses to capacity by fall. Producers of things the people of Europe need are told that whether war continues or peace prevails there will be a broad outlet there.

It is true that the price guaranties do not mean much in some cases, are not high enough to stimulate production to any great extent. But they are minimum prices and are not likely to do any harm. What Agriculture needs now is some assurance that there will be no interference with open market prices of agricultural commodities if they go high enough to be regarded as too high by those who want to regulate everything and think they can do it. The greatest barrier to increased production is not the fear of low prices. It is the fear that after taking all the risks involved in war-time costs of labor, materials and taxes, producers may not be allowed to enjoy open market or natural prices for their products. And that will exist as long as talk of controlling prices persists and no assurance is given that there will be no interference with open markets.

Pennsylvania Farmer, May 3, 1941.

Highly Questionable Proposals

Under consideration by the Department of Health of the City of New York is a measure of vast importance not alone to those engaged in the live poultry business in the Metropolitan area, but also to all country growers and shippers who rely on outlets in this great consuming center.

Under the proposed ruling, all poultry delivered from slaughterhouses to chicken dealers and butchers would have to be plucked. To understand the significance of such a regulation, some knowledge of the customs and demands of the consumer of live poultry in the New York area must be understood.

To summarize the situation, the major consuming group is, of course, the Hebrew race, and its people are governed by religious laws in respect to food. Under the law, kosher poultry must be clean cut, dry picked, and eaten not more than twenty-four to forty-eight hours after slaughtering, the usual practice being for the housewife to buy the poultry from the butcher while it is still warm. Saturday, according to custom, is the day when the bulk of kosher poultry is served in homes, and Thursday morning, therefore, is the time at which a large percentage of the poultry is killed.

Estimates of the total weekly volume slaughtered during this comparatively short period range from 50 to 75 per cent, according to the type of business involved, and it is generally believed that about 40,000 pounds is the weekly average of the bulk of the slaughterhouses, while several large ones reach an output 50,000 to 60,000 pounds or more. The enormity of the task of dry plucking 20,000 to 45,000 pounds of poultry in an eight-hour period each week is obvious, and the added expense and space requirements devolving upon the slaughterhouses would naturally be considerable.

Any definite improvements in sanitary conditions considered reasonable will receive the wholehearted backing of the trade; however, all branches of the industry should strongly urge the Department of Health carefully to consider the many and complicated factors involved in the matter of plucking poultry in the slaughterhouse before any action is taken which might seriously impede the marketing of this highly perishable product and increase unnecessarily the costs of distribution.

—American Egg and Poultry Review, May, 1941.

Support for Egg Prices

Millions of dollars will be added to the income of poultry raisers during the next few years as a result of a decision of the United States government to place a "floor" under hog, butter, poultry and egg prices. The purpose of this move is to encourage the production of these commodities to meet the needs of Great Britain and other nations resisting totalitarian attacks.

All efforts of the present administration to solve the farm problem over the past eight years have been directed at the restriction of production, so this decision to stimulate production comes as complete reversal of policy. This change is a result of the passage of the Lend-Lease Bill, and we must assume that the decision is made in Washington with some definite knowledge of the extent to which eggs and poultry will be supplied to Great Britain.

In the face of the fact that there has been an apparent surplus of eggs through most of the winter coupled with a sharp increase in the demand for chicks this year, the need for stimulating the production of eggs might be questioned. Government buying of eggs designed to relieve a surplus condition prevented normal operation of the poultry cycle, just as the corn and wheat loans encouraged surpluses of those two grains.

What the effects of this program of stimulating production will be several years hence cannot be predicted. Apparently, the need for production now and in the immediate future is pressing.

Secretary of Agriculture Claude R. Wickard, in a statement issued on April 16, indicated that about 6 per cent more egg production was needed in the next 15 months. The Department of Agriculture has announced that it will support long term egg prices at an average of about 22 cents (Chicago basis) until June, 1943.

Feed supplies are plentiful. The government will release corn at the corn loan rate plus certain carrying charges. This is expected to put corn at about 69 cents a bushel.

Rather than add a lot to the permanent investment, Secretary Wickard suggests that "flock owners will need to feed heavily to get every possible egg from laying hens on hand this spring and summer. They will need to save over every good layer for fall and winter egg production. They should, in addition, hatch or buy enough chicks this spring and save enough pullets, to fill the laying houses of America to capacity for next spring's production."

—Everybodys Poultry Magazine, May, 1941.

The Hidden Labor Crisis

Due to the fact that such a relatively small part of all agriculture is yet mechanized, we are still fairly immune from industry's strike-threat risk, which some day must come. However, the great risk of the moment is the risk that the farmers of America will not be able to secure enough skilled labor to produce and deliver the total of agricultural goods that has been promised.

That chance directly touches the poultry industry. It appeared from a discussion at the Secretary's round table that American farm labor is being directly drained from the farms through two channels. The first is the draft. This is very real and unless preference and deferments are set up to protect specialized farm labor such as is demanded by the dairy and poultry industries, both of these industries will suffer materially. The only way to protect them is for an organized farm industry to raise its voice and squawk before it is too late.

The second farm labor drainage is the labor leaking out to defense industries where the immediate fabulous payrolls offer an irresistible lure. It is hard to show a $20 a month farm boy why he shouldn't take $40 a week building an army camp. It is equally hard to replace him when he goes. It is harder still to replace the poultry specialists and managers and they, too, are hearing the call of more cash.

There are only two ways the poultryman can meet this challenge; he must "put up or shut up." It looks as though he might have to pay more to hold his help. However, there is an unhappy conclusion here, too, because there are real limits to what he can pay. We all know that the price of the product must carry the costs, and when prices go too high, demand falls off. The poultrymen is in a tough spot for the next 15 months, and all his ingenuity and patience will be called into play to keep out of red ink and to help his industry to live up to its share of our national commitment: "We must deliver the goods."

—New England Poultryman, May, 1941.

Government Activity and Prices

Government has bought a lot of eggs at country points, thus lessening the business on the big central exchanges. Now government is weakening the futures market on the exchanges by advices from Washington to the effect that current speculative activity in futures trading in several food commodities, including eggs, should be curtailed. What does the government want, a 22 cent price for eggs as a minimum, or is this to be also viewed in the light of a maximum?

An effective way to keep eggs from going up would appear to be to discourage speculation in the futures market, and buy cash eggs in the country, in order to keep the trades off the big exchanges where prices are established. It is too early to know in detail just how the Washington officials are going to manipulate their business. We do know that government is the big buyer, and is therefore in position to influence prices more than any other single agency. This month, government should begin to show its hand in the poultry market. Hens will be going to market. The price is to be pegged at 15 cents a pound, Chicago basis. At this writing, prices in Chicago are 18½ a pound for live Leghorn hens, and 21½ cents a pound for other hens not over 5 pounds.

Government could maintain these prices as ex-layers begin to move to market, or push them a little higher by buying. They could hold these prices by buying what is necessary to do so. Or, they could let receipts run heavy enough to press down the price to the 15 cent level, and then buy enough stuff in the country to let the Chicago market drift along at that level. Your political friends in Washington are the boys with the check book and the say-so. The big fat butter and egg man, and the speculator whose functions are so poorly understood that he is the subject of severe prejudice, will probably be the goats; but actually, prices will depend very largely upon what Washington officials think are the correct values.

It may appear that prices and markets should be much freer from the influence of the body politic. This writer concurs in the opinion. It is distasteful to this writer to harp on government activity. Unfortunately, however, the government is today such an enormous factor that everything else, in comparison, is insignificant. The same is true in Europe and Asia, the chief difference being that in the U. S. we still have the right to find fault, and criticise. That is a chief attribute of freedom.

It should be pointed out, so that all will understand, that we are living in a day of more or less planned economy which tends to reduce to impotence some of the old forces and puts the new controls into the hands of human government agents. Government is today not only the biggest buyer, and the biggest customer, but it has the controls to regulate all other trading in eggs, wheat, corn, and so forth.

—Frank L. Platt in American Poultry Journal, June, 1941.

Preventing Damp Litter Around Fountains

There are several important characteristics of a good water fount. The prevention of damp litter about the founts is one of the important ones, particularly in multi-story houses with their wooden floors which will rot from dampness. The following details will reduce, if not entirely prevent scattering of water while the birds are drinking:

1. Making the perch upon which the birds stand on a level or slightly higher than the water level will cause the birds' beaks to enter the water at almost right angles to the water surface. The wattles in most cases do not touch the water at all. There is, therefore, no water to shake off.
2. The placement of a small fount far enough away from the perch so that the birds' wattles do not get into the water, their beaks entering the water in most cases close to the edge of the fount.
3. A fount shallow enough or narrow enough so that the wattles do not enter the water.
4. The use of guard wires to keep the birds at a proper distance and to discourage the birds from shaking their heads as well as to keep the birds' feet out of the fount.

—W. C. Sanctuary in Featheredfax, April-May, 1941.

Controlling Blackhead in Turkeys

By H. R. BAKER and L. M. GREENE
Delaware State Board of Agriculture

Reprinted from the Peninsula Broiler Journal

BLACKHEAD is one of the most destructive diseases affecting turkeys. The term "blackhead" is misleading since any disease that causes a decrease in the oxygen supply of the blood or impairs the circulation may cause the head to become darkened in appearance.

Blackhead is caused by a microscopic parasitic organism which lives in the liver and ceca of affected birds. The cecal worm acts as a carrier for this organism. Although it is possible to spread the blackhead disease without the presence of the cecal worm, it has been found that the organism which causes blackhead will perish in a short time when it is exposed to the elements. When the organism is contained in the egg of the cecal worm, however, it will remain alive and infective over a considerable period of time.

It is believed that if the cecal worm is controlled, the spread of blackhead will be prevented. Experiments by the Washington Agricultural College have shown that phenothiazine is from 95 to 100 per cent effective in killing and expelling the cecal worm from fowls.

Phenothiazine may be secured through local veterinarians who can obtain the drug from medical supply houses. It is probable that commercial houses will soon make the chemical available to poultry supply houses and feed stores.

Use of Phenothiazine

If possible, the birds should be confined to the house. The feed should be withheld for a few hours until the birds become hungry. For each 1,000 birds, one pound of phenothiazine should be mixed with what mash the birds will clean up in an hour or less. After the mash and the phenothiazine have been thoroughly mixed, it should be moistened slightly to make it attractive and to prevent waste. The mash should be distributed in plenty of feed hoppers to provide easy access by all of the birds. This gives every bird a chance to eat the mixture.

The cecal worms will be eliminated in the droppings during the following two or three days. Where practical, the birds should then be removed to clean ground to prevent

The Peninsula Broiler Journal, Selbyville, Dela., June 2, 1941

reinfestation from the contaminated premises. Where this cannot be done, the premises should be cleaned thoroughly.

If the birds must remain in contact with infested premises where they may continue to pick up cecal worm eggs, the treatment should be repeated in four to six weeks.

Not only does the drug do its work against the cecal worm better than any other anthelmintic that has been reported upon by scientists, but it does not disturb the digestion of the birds, has no effect upon the flavor of the meat and does not appreciably reduce egg production.

Feathers Made Into Feed

"Fine feathers make fine birds" is an old bromide that is proving itself, as Iowa State College tests have just shown.

Carroll Draper, research worker, has just completed tests in which feathers, processed to make them digestible, were found to be a valuable protein supplement to the poultry ration.

The breakdown process which makes the feathers digestible makes available a product containing 62 per cent protein. Nine to 12 per cent of this protein is the valuable amino, cystine, needed for feather growth in chickens, and for hair and nails in humans. Feeding trials showed that the processed feathers made an excellent supplement when fed with corn-oil meal, producing good body and feather growth.

Draper states that the work is not yet completed that so far the processing of the feathers is too costly to be practical, but that great possibilities are seen for using formerly wasted feathers as a source of protein.

—Frank Galer, Poultry Tribune, May, 1941.

HENS are doing their bit to get the Logansport, Ind., library going again after a fire which damaged or destroyed most of the books. Handicapped by lack of a book fund, and with no aid in sight until new taxes could be levied, library officials were encouraged by 4-H girls who announced that each would "set" a hen and give the proceeds to the library for book purchases.

A CROWING ROOSTER caused Mrs. Frank Blain, Passadena, Calif., to be haled into court. When the judge seem dubious about her statement that the rooster would crow no more, according to a news report, Mrs. Blain offered the convincing testimony, "We ate it for supper last night."

Downward Trend in Costs of Egg Production

By RALPH D. JENNINGS

Condensed from The Poultry and Egg Situation

THE trend in the cost of producing eggs has been definitely downward for 20 years. Lower feed costs per dozen eggs have been responsible for part of this decline, but some other costs also have fallen as farmers have become more efficient in production methods. Some costs are higher. A considerable share of the reduction has come from generally larger production per hen.

The items of cost included in the estimates are feed, labor, depreciation and death loss, use of buildings, equipment and land, interest, taxes and miscellaneous costs.

The differences in the estimated costs for the various areas and types of production are largely due to differences in the prices of feed. The Pacific Coast has a lower feed price than the northeastern states. The lower cost on the small commercial flocks of the Midwest, compared with the commercial flocks of the Northeast, reflects mainly the lower feed prices in the Corn Belt. Wages and some other costs items also are lower in the Midwest.

The average farm flock of Rocks or other heavy breeds in the western Corn Belt has a lower cost than the commercial flocks of Leghorn or other light breed of the eastern Corn Belt despite a much lower egg production per hen in the western Corn Belt. The principal reason is that probably 25 per cent of the feed for these small flocks is picked up by the flocks—feed that would otherwise be wasted. Also, there is little or no depreciation (except mortality) to charge against the flock, because a hen of the heavy breeds will bring nearly as much for meat after a year as when first put into the flock. Feed prices are also lower in the western part of the Corn Belt than in the eastern part, and more home-grown feed is used in the western area.

The differences in the area costs of egg production do not mean that egg production in areas with low costs, such as the Corn Belt, is more profitable than in areas with high costs, since there is a wide range in quality and prices of eggs. The farm flocks of the Midwest produce a

U. S. Bureau of Agricultural Economics, Washington, D. C.
(The Poultry and Egg Situation, March, 1941)

large percentage of their eggs during the spring and summer months, and the price received for them is lower than that received by the other types of producers considered.

More Eggs Stay on Pacific Coast

The cost of production is generally higher in the Northeast than on the Pacific Coast. The Pacific Coast producers have a larger transportation charge for the eggs shipped East, probably amounting to 3 or 4 cents a dozen. Owing to the increase in population in California, more eggs are used at home and fewer shipped East than was true a few years ago. Consequently, those producers on the Pacific Coast that have to depend on the East for a market have to produce efficiently in order to meet the large cost of transportation not incurred by Eastern producers.

The trend in cost of production of eggs has been definitely downward since the middle 1920's for all four types of production. Significant among the changes in cost items during this period has been the lower level of feed prices in the last five years than in the middle 1920's. Feed prices in 1938 and 1939 were only about two-thirds those in the middle 1920's.

Production Rate Up

Also, egg production per hen in commercial flocks has been 20 per cent higher in recent years than it was 15 years ago. About 2 dozen more eggs are produced per hen in well-managed flocks in the Northeast now than 15 years ago. This lowers the cost per dozen, since many cost items do not increase with an increased rate of production. The quantity of feed consumed per bird increases, but not as fast as egg production, for about the same amount of feed is required for body maintenance regardless of the number of eggs produced.

This increase in egg production per hen is partly due to an increased proportion of pullets in the laying flock. The percentage of pullets in the flock in the fall has increased in commercial flocks in the East. Since birds in the pullet year generally lay around 50 eggs more than they do in the second year as hens, this increase in percentage of pullets is partly responsible for the increase in the average egg production per hen.

Higher Percentage of Pullets

This shift to a high percentage of pullets has not been without its drawbacks. For several years, death losses among pullets increased. Apparently that difficulty is now being controlled by better care and sanitation, as death losses are now declining. Another drawback is that a flock of a light breed from which pullets are culled out heavily and few hens kept over has a high depreciation charge. If pullets costing $1.25 are culled out the first year and bring only 35 or 40 cents for meat, there is a cost of 85 to 90 cents each which is a heavy charge against the flock. If the bird is kept for two years, this annual cost is cut about in half. This cost is much less with heavy breeds, as often a pullet or even a hen of a heavy breed will bring nearly as much for meat as it cost when put into the flock as a pullet.

Another drawback to flocks with a high percentage of pullets has been that the houses, other facilities, and labor are not fully utilized throughout the year. If one has a plant that will carry 1,500 birds in the fall and the number is gradually reduced by culling until only 500 are left at the end of the year, the average number carried during the year is 1,000. Thus, the facilities are only two-thirds utilized. Some poultrymen are meeting this obviously high cost by growing pullets throughout the year and immediately replacing culled birds with pullets, thus keeping the flock near maximum size throughout the year.

Production Offsets Depreciation

In the minds of producers, however, the increased depreciation cost due to an increase in pullet flocks over the last 10 or 15 years apparently is more than offset by an increase in income resulting from a larger egg production, much of which comes during the fall months when egg prices are high.

An important cost item in the poultry enterprise is death loss. Between 15 and 20 per cent of the number of pullets and hens started in the fall die during the following 12 months. A few years ago the rate was even higher. Apparently the trend in death loss is now downward, but it is still higher than it was 20 to 30 years ago. It is very high when compared with that of other species of livestock. The death loss of mature sheep in farm flocks is usually around 5 to 7 per cent and of cattle 1 to 2 per cent.

Less Demand for Storage Eggs

Changes affecting the income of poultry producers are not limited to changes in cost items. Changes in methods of production in one area or one type of producer affect other producers. The increase in the production of fall and winter eggs in commercial flocks has reduced the demand for storage eggs. This seems to have reacted on farm flocks of the Midwest that supply most of the eggs for storage. Average annual prices in Corn Belt States are relatively lower than they were 10 to 15 years ago, compared with those in Eastern States. This is partly due to the reduced storage demand, since the proportion of annual egg production sold in the spring and summer is larger in the Corn Belt than in other areas.

Numbers of layers kept on farms in the Corn Belt declined gradually from the late 1920's until the

drought years, when they declined very sharply, especially in the West North Central States. Although these numbers have increased somewhat since the drought, they are still well below the levels of the early 1930's. Numbers of layers in the Eastern States, on the other hand, have increased somewhat since the late 1920's and early 1930's.

Requirements for Farm Egg Rooms

The usual recommended temperature for egg-cooling rooms on the farm ranges from 40 to 55 degrees Fahrenheit. Eggs should not be cooled to a temperature lower than 40 degrees on the farm, because if they are later subjected to a comparatively high temperature in transportation, condensed moisture may form on the shells. This is commonly called sweating. The moisture removes the gelatinous bloom normally deposited on eggs, and the lack of bloom lowers the market value. Such eggs, with the pores in the shells opened, are likely to absorb undesirable odors, or they may become musty. A sound recommendation for handling farm eggs is to cool them as quickly as practicable and then to place them in the cases to be carried to market at the earliest opportunity. Warm eggs should never be placed in cases, for then they have no opportunity to cool rapidly.

Moisture in the cooling room is necessary to keep eggs from drying out and the contents from shrinking. It may be supplied by fine spray nozzles, melting ice, moist burlap hung about the room, or water poured on the floor if of concrete or other impervious material. For quick cooling, eggs should be spread out in a single layer, preferably on an open-mesh wire tray or table. Eggs in a full basket or a solid pail require several times as long to cool as do eggs in a single layer on a wire tray. Circulating the air around the wire containers speeds the cooling. Circulation of air is also important in preventing growth of mold if room humidity is high.

—H. L. Shrader in "Eggs and Egg Products," U. S. D. A. Circular 583.

¶ FARE paid for an 8-mile ride between two bales of shavings was an egg, when a hen picked a truck driven by Lloyd Rider, California, as a nesting place, says the San Joaquin Valley Poultryman. The hen flew onto the truck, stayed there while the driver made two stops, and then stepped out, leaving a freshly laid egg in remuneration for the ride.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Apr. 1	May 1	Apr. 1	May 1	Aggregate Jan.-May	Apr. 1	May 1	Aggregate Jan.-May
North Atl.									
1930-39 (Av.)	97.5	90.0	86.0	55.9	59.5	219	50.2	51.1	200
1940	97.2	88.2	84.2	55.4	59.1	231	48.7	49.6	209
1941	95.4	87.5	83.2	56.7	60.9	245	49.5	50.9	219
E. N. Cent.									
1930-39 (Av.)	108.8	101.6	95.9	54.1	58.6	198	55.2	56.3	204
1940	110.8	101.7	97.3	52.8	58.4	206	53.8	56.9	215
1941	110.3	100.6	95.4	53.5	60.2	222	53.8	57.4	228
W. N. Cent.									
1930-39 (Av.)	117.6	111.4	105.6	52.1	56.4	180	58.0	59.5	200
1940	118.6	113.6	109.5	51.8	58.7	188	58.9	64.2	215
1941	116.1	111.4	106.3	53.6	59.9	206	59.4	63.8	230
South Atl.									
1930-39 (Av.)	58.6	53.6	50.0	52.0	51.8	197	27.8	25.5	107
1940	59.9	56.3	53.3	52.7	52.8	204	29.5	27.7	115
1941	59.4	54.4	49.9	54.4	54.8	218	29.2	26.6	118
South Cent.									
1930-39 (Av.)	64.4	58.4	54.1	53.2	51.8	192	30.9	27.9	114
1940	65.8	59.9	56.5	53.7	53.0	187	32.1	29.8	114
1941	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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South Atl.									
1930-39 (Av.)	58.6	53.6	50.0	52.0	51.8	197	27.8	25.5	107
1940	59.9	56.3	53.3	52.7	52.8	204	29.5	27.7	115
1941	59.4	54.4	49.9	54.4	54.8	218	29.2	26.6	118
South Cent.									
1930-39 (Av.)	64.4	58.4	54.1	53.2	51.8	192	30.9	27.9	114
1940	65.8	59.9	56.5	53.7	53.0	187	32.1	29.8	114
1941	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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INTENTIONAL 2ND EXPOSURE

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Requirements for Farm Egg Rooms

The usual recommended temperature for egg-cooling rooms on the farm ranges from 40 to 55 degrees Fahrenheit. Eggs should not be cooled to a temperature lower than 40 degrees on the farm, because if they are later subjected to a comparatively high temperature in transportation, condensed moisture may form on the shells. This is common-

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National Poultry Digest

HANOVER,

PENNA.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Apr. 1	May 1	Apr. 1	May 1	Aggregate Jan.-May	Apr. 1	May 1	Aggregate Jan.-May
North Atl.									
1930-39 (Av.)	97.5	90.0	86.0	55.9	59.5	219	50.2	51.1	200
1940	97.2	88.2	84.2	55.4	59.1	231	48.7	49.6	209
1941	95.4	87.5	83.2	56.7	60.9	245	49.5	50.9	219
E. N. Cent.									
1930-39 (Av.)	108.8	101.6	95.9	54.1	58.6	198	55.2	56.3	204
1940	110.8	101.7	97.3	52.8	58.4	206	53.8	56.9	215
1941	110.3	100.6	95.4	53.5	60.2	222	53.8	57.4	228
W. N. Cent.									
1930-39 (Av.)	117.6	111.4	105.6	52.1	56.4	180	58.0	59.5	200
1940	118.6	113.6	109.5	51.8	58.7	188	58.9	64.2	215
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1941	62.7	57.1	53.5	54.7	55.4	212	31.2	29.5	123
Western									
1930-39 (Av.)	73.2	68.4	65.9	57.3	59.1	216	39.0	38.9	147
1940	73.7	67.4	64.4	59.1	59.1	228	39.5	38.1	153
1941	71.6	65.9	63.3	58.6	58.2	230	38.1	37.0	151
United States									
1930-39 (Av.)	84.0	77.9	73.4	53.6	56.1	195	41.6	40.8	153
1940	85.1	79.0	75.3	53.6	57.1	202	42.1	42.5	160
1941	83.2	77.0	72.7	54.7	58.6	218	41.8	42.2	169

Egg production in April, equivalent to 13,875,000 cases, was less than 1 per cent smaller than the layings of April 1940, and about the same as the 10-year (1930-39) average. Although the average rate of lay during April was about 2 per cent larger than it was last year, a 3 per cent decrease in the number of April layers was more than an offsetting factor. Egg production in April was larger than in April last year in the North Atlantic and East North Central States but smaller in all other parts of the country. Compared with the 10-year average, the April egg production was smaller in the East North Central and Western States but larger in all other areas. Aggregate egg production for the first four months of this year was the largest of record for that period in the North Atlantic and East North Central States. It was the largest in the last decade in the West North Central and South Atlantic States as well as for the country as a whole.

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United States									
1930-39 (Av.)	84.0	77.9	73.4	53.6	56.1	195	41.6	40.8	153
1940	85.1	79.0	75.3	53.6	57.1	202	42.1	42.5	160
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INTENTIONAL 2ND EXPOSURE

The rate of egg production per layer during April averaged 16.93 eggs for the United States, compared with 16.52 eggs a year ago, and with the 10-year April average of 16.66 eggs. This year's rate exceeded last year in all parts of the country except in the Western States, where the rate was 1 per cent below a year ago.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Receipts of eggs at the four larger markets have shown a gradual seasonal decline during May. Compared with last year, receipts have been running approximately 16 per cent less. Receipts at central western packing plants have held above last year's level except for the week of May 10 when the decrease totaled less than 1 per cent. For the week of May 17, an increase of almost 10 per cent over last year was recorded. Heavier receipts at central western packing plants and lighter receipts at terminal markets are mainly due to heavier Government purchases in the midwestern area. Receipts at eastern egg auctions have held above the corresponding period last year, although the increase during the first half of May totaled only 2 to 3 per cent. Pacific Coast production continues to lag considerably below the same period last year, but to a lesser degree. The decrease the second week of May totaled 12 per cent.

Receipts of dressed poultry throughout April were almost 1 per cent above April 1940. Receipts January to April inclusive were 12 per cent below the same period last year. During May, receipts increased approximately 12 per cent over May 1940. Stocks of poultry in cold storage on May 1 totaled 101 million pounds, a reduction of 26 million pounds during April. May 1 holdings exceeded same date last year by 15 million pounds with increases noted in all classes except turkeys and broilers. Holdings of turkeys were reduced 11 million pounds during April with total holdings on May 1 totaling 36,143,000 pounds, compared to 43,723,000 pounds on same date last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
May 3	29	41,238	+0.72	+8.93
May 10	29	40,357	–3.59	+2.03
May 17	29	39,756	+0.31	+2.84
May 24	29	40,946	–2.52	+3.89
May 31	25	31,236	–6.48	+5.59

—Compiled from U. S. D. A. market reports.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	April 1941	April 1940	April % change	Jan. to April, Inc. 1941	Jan. to April, Inc. 1940	Jan. to April, Inc. % change
New England	49,810	50,894	– 2.1	217,087	196,129	+10.7
Middle Atlantic	252,617	263,047	– 4.0	905,243	820,982	+10.3
South Atlantic	45,825	47,475	– 3.5	105,500	116,849	– 9.7
East North Central	487,419	485,855	+ 0.3	1,217,757	1,202,192	+ 1.3
West North Central	1,071,047	1,215,287	–11.9	2,801,488	2,860,284	– 2.1
South Central	26,438	14,495	+82.4	46,077	57,157	–19.4
Mountain	28,017	43,067	–34.9	88,415	157,662	–43.9
Pacific	10,336	32,898	–68.6	36,555	202.699	–82.0
Miscellaneous	626	568	+10.2	1,895	1,791	+ 5.8
TOTAL	1,972,135	2,153,586	– 8.4	5,420,017	5,615,745	– 3.5

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic Section	April 1941	April 1940	April % change	Jan. to April, Inc. 1941	Jan. to April, Inc. 1940	Jan. to April, Inc. % change
New England	408,796	668,965	–38.9	1,134,447	2,134,557	–46.9
Middle Atlantic	4,580,824	3,957,569	+15.7	9,701,420	8,656,794	+12.1
South Atlantic	2,846,206	2,271,953	+25.3	10,077,308	8,990,533	+12.1
East North Central	2,577,314	3,504,137	–26.4	11,598,220	12,776,161	– 9.2
West North Central	5,830,304	6,518,436	–10.6	36,170,336	44,385,164	–18.5
South Central	2,040,741	1,676,857	+21.7	6,270,288	6,677,279	– 6.1
Mountain	193,176	53,421	+25.9	2,345,357	2,414,302	– 2.9
Pacific	684,023	372,391	+83.7	5,553,524	7,655,573	–27.5
Miscellaneous	0	0	–	0	0	–
TOTAL	19,161,384	19,023,729	+ 0.7	82,850,900	93,690,363	–11.6

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1941	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1941	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1941	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) % Chg.
May 3	303,412	304,577	– 0.38	1,682	2,122	–20.75	Discontinued until 1941 Hatchings Are Available in Larger Volume			1,278	1,755	–27.17
May 10	296,139	298,655	– 0.84	2,126	2,357	– 9.79				1,640	1,944	–15.64
May 17	316,728	288,432	+ 9.81	2,708	3,007	– 9.95				1,993	2,460	–18.97
May 24	283,120	252,874	+11.96	2,784	3,202	–13.05				2,071	2,481	–16.52
May 31	271,554	222,479	+22.06	2,739	3,448	–20.57				1,893	2,779	–31.85

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
May 3	61	68,722	82,360	+1.13	–16.56
May 10	61	68,266	78,914	–0.66	–13.49
May 17	60	67,119	76,392	–0.84	–12.14
May 24	61	66,259	76,054	–2.10	–12.88
May 31	61	63,250	73,409	–4.54	–13.84

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
April	7.88	10.01	7.84	8.54	10.33	7.85
January-April	7.58	9.67	7.32	8.30	9.62	7.48
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration			Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	10-Yr. Avg. 1931-40	1941	1940	1941	1940
May 3	6.08	8.05	6.84	.217	.170	1.323	1.369
May 10	6.19	8.11	6.83	.217	.170	1.346	1.380
May 17	6.03	7.79	6.87	.229	.165	1.382	1.285
May 24	5.90	7.92	7.05	.233	.162	1.380	1.287
May 31	5.83	7.82	7.15	.237	.161	1.383	1.263

—Compiled from U. S. D. A. Market Reports.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
May 2	8.8	10.7	9.3	.229	.188	.19	2.02	2.00	1.77
May 9	8.8	10.8	9.3	.234	.185	.19	2.06	1.99	1.77
May 16	8.5	10.0	9.6	.249	.187	.183	2.12	1.91	1.75
May 23	8.1	10.7	9.5	.26	.18	.184	2.10	1.92	1.75
May 30	8.1	10.8	9.7	.258	.178	.182	2.09	1.92	1.77

—Compiled by N. Y. State Department of Agriculture and Markets.

Egg Prices

Continued heavy Government purchases of shell eggs together with liberal acceptances of frozen and dried eggs were outstanding features of the egg markets during May, the Department of Agriculture reports. There were indications, however, that the seasonal decline in quality and volume of receipts, and an increased willingness on the part of dealers to accumulate stocks in storage, were strengthening factors. Prices during the month advanced 2 to 3½ cents on all grades at principal markets. In comparison to same date last year, prices on May 28th were 7¼ to 7½ cents higher at Chicago, 5½ to 8¼ cents higher at New York, 9 to 10½ cents at San Francisco, with similar advances elsewhere. Advances on all grades were fairly uniform. Chicago October futures showed a net advance May 1 to 29 inclusive of 3.05 cents. Into-storage movement continued liberal, although totals were below last year and the 5 year average.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7								

1941 Egg Prices at New York City

Kind	May 2	May 9	May 16	May 23	May 29	May 29 '40
Mixed Color Firsts	22¼	22¾	23¾	24½	24¾	17¼
Nearby and Midwestern White Premium Marks	23½-25	25½-26¾	27½-29	26¾-28¼	27½-29	20-21½
Nearby and Midwestern White Exchange Specials	23	24¾	26¾-27	26-26¼	26½-27	19½
Pacific Coast Specials	31-32	31½-32	32½-33	33½-34	33½-34	24-26½
Nearby and Midwestern Brown Specials	23¼	24	25½	26	27	19½

Government Purchases

Government purchases from May 1 to 31 inclusive, totaled 460,195 cases of shell eggs, compared with 385,000 cases from April 1 to 28 inclusive. In addition, during the period from May 1 to 29 there were purchases of 15,528,750 pounds of frozen eggs and 874,500 pounds of dried eggs. Offerings of shell eggs and frozen and dried eggs have been of considerably lighter volume the last half of May and acceptances have been correspondingly less.

Purchases of 15,528,750 pounds of frozen eggs by the Federal Surplus Commodities Corporation were of outstanding significance during May. Offerings were exceptionally heavy on May 12, the first date of acceptance, but declined considerably on more recent tenders, reflecting a firmer tone in the open market. Production of liquid eggs during April exceeded those of the same month last year by 7 per cent. During the January to April period, there was an increased production of 27 per cent. Storage stocks on May 1 totaled 99,617,000 pounds, an increase of 26 per cent over holdings on the same date last year. The net increase in storage during April totaled 36,187,000 pounds—3 per cent greater than during April last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Eggs in Storage

Storage Holdings of Eggs

Kind	May 1 5-Year Avg. 1936-40	May 1 1940	Apr. 1 1941	May 1 1941	% Change May '40-May '41
		Thousands			
Shell Eggs (cases)	3,469	3,341	1,090	3,030**	– 9.3
Frozen Eggs (lbs.)	88,311	79,454	63,428	99,617	+25.3
Frozen Case Equivalent (cases)*	2,523	2,270	1,812	2,846	+25.3
Total (cases)	5,992	5,611	2,902	5,876	+ 4.7

* Frozen eggs are converted on the basis of 35 pounds to the case.

** Includes 214,987 cases owned by the Surplus Marketing Administration for relief distribution.

Into-storage movement continued heavy, as is normal for the season. Total holdings as of May 1 were 2,815,000 cases, which was 15 per cent less than on May 1 last year, and 19 per cent less than the 5-year average. On May 1, approximately 71 per cent of the total holdings were in the 35 markets, compared with 72 per cent on the same date last year. Holdings in the 35 markets as of May 24th were 3,742,681 cases or approximately 7 per cent below the corresponding week last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry Meat Prices

Mid-Month Farm Prices of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7								

Prices on live fowl declined seasonly, though they continued high in relation to young stock. Live fowl at Chicago declined 1 to 3½ cents during May, with prices toward the close the same as those prevailing around April 1. On Eastern markets, heavy fowl held about unchanged, while leghorn and light fowl advanced. Broilers, fryers and roasters held unchanged to slightly higher during the month.

Fresh dressed poultry declined to 23½ cents the fourth week of May, compared to 27 cents on May 1. Frozen fryers and roasters declined 1 to 2 cents. Frozen turkey prices are ½ to 1 cent above the same period last year on young hen turkeys and 3½ to 5 cents higher on young toms.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	May 1 5-Year Avg. 1936-40	May 1 1940	Apr. 1 1941	May 1 1941	% Change May '40-May '41
		Thousand Pounds			
Broilers	6,138	4,519	5,593	4,463	– 1.3
Fryers	5,770	3,135	8,007	5,966	+90.3
Roasters	13,511	9,950	22,973	17,964	+80.5
Fowls	10,749	12,391	21,974	17,989	+45.1
Turkeys	23,391	43,723	46,966	36,143	–17.1
Ducks	1,214	972	1,666	1,657	+70.4
Miscellaneous	11,439	7,768	11,435	9,900	+27.4
Unclassified		3,768	8,290	6,918	+83.6
Total	72,212	86,226	126,904	101,000	+17.1

Hatchery Operations

The production of commercially hatched chicks during April was 1 per cent above the output of April 1940, the U. S. Department of Agriculture reports. The estimate shows an output of 235,391,000 chicks, compared with 233,526,000 in April last year and 238,944,000—the record high output, of April 1939.

However, this year's April output was really more than 1 per cent larger than the April output last year. Many hatcheries operating at maximum capacity actually hatched less chicks in April this year than a year earlier, due entirely to the differences in the number of hatches. Many firms have hatches coming off every Monday during the heavy hatching season, and the fact that April last year had five Mondays and April this year only four Mondays accounts for the smaller number of hatches. The slight increase in chicks hatched during April in spite of the smaller number of hatches indicates that the rate of output during the month was very high. The production of commercially hatched chicks for the first four months of 1941 shows an increase of 17 per cent over the production of the same

Eggs Set by Commercial Hatcheries

Geographic Divisions	Apr. 1938	Apr. 1939	Apr. 1940	Apr. 1941	% chg. from Apr. 1940	Jan.-Apr. Inc. 1940	Jan.-Apr. Inc. 1941	% chg. from 1940
			Thousands					
New England	10,970	10,444	12,025	13,228	+10	40,274	48,603	+21
Middle Atlantic	25,018	24,968	25,413	26,938	+ 6	80,698	87,328	+ 8
South Atlantic	16,478	19,187	20,005	23,006	+15	60,263	75,875	+26
E. N. Central	94,158	105,400	104,267	112,608	+ 8	242,012	272,967	+13
W. N. Central	103,145	120,037	114,089	128,921	+13	257,895	295,487	+15
South Central	23,821	27,868	24,675	29,363	+19	92,987	114,234	+23
Mountain	5,418	7,280	5,992	6,352	+ 6	18,279	20,806	+14
Pacific	9,337	15,401	9,684	12,202	+26	47,180	54,660	+16
U. S.	288,345	330,585	316,150	352,618	+12	839,588	969,960	+16

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Apr. 1938	Apr. 1939	Apr. 1940	Apr. 1941	% chg. from Apr. 1940	Jan.-Apr. Inc. 1940	Jan.-Apr. Inc. 1941	% chg. from 1940
			Thousands					
New England	8,191	8,545	9,322	9,042	– 3	27,275	35,644	+31
Middle Atlantic	18,444	18,768	18,567	18,753	+ 1	45,571	51,054	+12
South Atlantic	13,337	14,808	16,165	16,812	+ 4	39,747	51,610	+30
E. N. Central	65,108	70,292	71,004	68,874	– 3	128,149	144,465	+13
W. N. Central	72,547	84,232	79,216	80,800	+ 2	137,322	154,335	+12
South Central	21,609	24,038	24,857	25,851	+ 4	60,669	75,127	+24
Mountain	3,815	4,788	4,630	4,908	+ 6	10,257	11,731	+14
Pacific	9,846	13,473	9,765	10,351	+ 6	31,511	36,301	+15
U. S.	212,897	238,944	233,526	235,391	+ 1	480,501	560,267	+17

period last year and 3 per cent above the previous high production for the corresponding period in 1939.

Gains over April last year in the number of chicks hatched occurred in the Pacific Coast and Mountain States, with increases of 6 per cent; in the South Central and the South Atlantic States, with increases of 4 per cent; in the West North Central States, with 2 per cent; and in the Mid-Atlantic States, with 1 per cent. Decreases of 3 per cent were reported in the New England States and in the East North Central States. Ever since the Government announced (on April 16) a Nation-wide drive to increase egg production, there has been an increasingly strong demand for chicks.

Reports received by the Agricultural Marketing Service showed that on May 1, 10 per cent more young chickens were on farms than on the same date last year. Indications were that the hatch in May would be a very large one for that month. The number of chicks booked on May 1 for later delivery was 84 per cent more than on the same date a year ago with all regions of the country showing substantial increases. It is possible that there may have been some cancellation of orders from commercial broiler producers on account of the recent drop of about 2 cents a pound for young chickens, but it appears that hatcheries, for the most part, have had very little difficulty in disposing of all of their May output of chicks.

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked May 1	% Light Breed hatched		% Heavy breed hatched		Sexing
	% change from May 1, 1940	April 1940	April 1941	April 1940	April 1941	% change from April 1940
New England	+185	11	12	89	88	+ 35
Middle Atlantic	+ 10	49	48	51	52	+ 1
South Atlantic	+124	22	20	78	80	+160
E. N. Central	+ 71	36	33	64	67	+ 11
W. N. Central	+ 55	43	43	57	57	+ 87
South Central	+402	31	29	69	71	+ 31
Mountain	+ 48	41	44	59	56	+ 18
Pacific	+ 78	75	72	25	28	− 1
U. S.	+ 84	40	40	60	60	+ 6

Turkey Eggs Set, Poults Hatched, and Poults Booked by Commercial Hatcheries

Geographic Section	No. plants rptg. both years	Eggs set in April			Salable Poults Hatched in April			Poults Booked May 1 for May or later delivery			
		1941	1940	% chg.	1941	1940	% chg.	No. of plants	1941	1940	% chg.
		Thousands			Thousands				Thousands		
N. Eng., Md. At., & S. Atl.	18	295	295	–	66	80	–18	4	20	12	+67
E. N. C., W. N. C., & S. Cent.	74	895	910	–2	422	469	–10	36	363	390	– 7
Mt. & Pacific	35	887	970	–9	562	610	– 8	21	461	389	+19
U. S.	127	2,077	2,175	–5	1,050	1,159	– 9	61	844	791	+ 7

A special inquiry on the number of eggs set during the first two weeks of May showed that 36 per cent more eggs were set than during the same period last year. There is no doubt that hatcheries in some of the States are setting more eggs in May this year than in any other May of their entire business history. The largest gains over the same period last year were in the South Central States with an increase of 92 per cent; the Pacific Coast States, 82 per cent; and the New England States, 57 per cent.

Approximately 40 per cent of the chicks hatched during April were of light breeds and 60 per cent were of heavy breeds. This division between light and heavy breeds was identical with that of April last year.

The 6 per cent increase in the number of chicks sexed was larger than the increase in the number of chicks hatched, indicating a stronger interest in sexed chicks. Hatcheries reporting sexing for both years showed that they sexed 38 per cent of the chicks hatched compared with 36 per cent in April last year.

Reports from 127 hatcheries showed 5 per cent fewer turkey eggs set and 9 per cent fewer poults hatched during April compared with a year ago. The demand for poults was reported to be generally good. Advanced orders for poults were reported by 61 plants to have been 7 per cent above those at the same date last year.

—Comment from U. S. D. A. Hatchery Report.

Egg and Poultry Exports and Imports

NOTICE

The import and export tables formerly carried on this report are being discontinued temporarily. A separate "Import and Export Report (Dairy and Poultry Products)", showing total imports and exports, but not including countries of origin or destination will be issued, and this report will be available upon request to the agricultural Marketing Service, U. S. Department of Agriculture, Washington, D. C.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Keeping Over Old Turkey Breeders

There is always some argument over the advisability of holding over old birds to use again the following year, and, like most questions, there are two sides to it. Where a turkey flock constitutes an actual breeding farm, there is no question about the advisability of keeping over some of the better hens and toms. The breeder often needs these birds for his family blood lines and can afford to take the trouble and bear the loss of holding them over.

There is one more argument on the pro side of this question. There is little doubt but that poults hatched from two-year-old hens are larger, and perhaps stronger, than poults from pullets. Some hatcheries charge double for poults from hens. Certainly, if the hens are outstanding in quality, the cost of keeping them over is a minor matter to a good breeding farm.

On the other side of the question is this matter of disease. Authorities now tell us that many of the ills to which our poults fall heir come from older birds. Hexamita is supposed to be directly traceable to the presence of old birds on the premises, although outbreaks have been known to occur on farms where no old birds have ever been kept over.

Old hens will lay a few less eggs than pullets and, as a rule, the fertility is not quite so high; though over this latter point there is still some argument.

If you do keep old hens, break them up from laying as soon as possible. One of the best ways of doing this is to cut out the mash just as soon as the egg season is over and feed straight oats. If the hens have green feed available, so much the better. The quicker you can throw these hens into a moult, cut out production and broodiness, the lower will be your summer mortality.

—Norbest Turkey News, May, 1941.

The Cost of Dirty Eggs

It is estimated that dirty eggs aggregate one-fifth or more of the total production. If the reduction in market value is about $1.25 per case, the loss to the farmers is many millions of dollars. The marketing of dirty eggs also has a depressing effect on consumer demand.

—H. L. Shrader in "Eggs and Egg Products," U. S. D. A. Circular 583.

RESULTS OF LAYING TESTS

As the 18 standard laying tests enter the eighth month of production for the present trial run, Arizona leads in average production with 140.68 points and 135.15 eggs per bird. Texas and Storrs are next in line. Average production for the total 15,704 birds entered last October is 126 points and 123.31 eggs.

Particularly outstanding is the work of T. N. Wilcox's Barred Rocks at Georgia. These 13 birds continued their terrific pace during April, and on May 1 stood at the head of all pens in all breeds at all tests. For the 212 days thus far, these blue ribbon producers have an average of 189.38 eggs and 200.85 points per bird.

Second highest scoring pen to date is J. A. Hanson's team of White Leghorns at Storrs. Just three eggs and three points separate these birds from the leaders.

E. B. Parmenter's team at Maine rates third highest in the country, and holds number one spot among all Rhode Island Reds.

Top-notch New Hampshire outfit on May 1 is Thomas J. Harrold's pen at Georgia.

Carter-Dunham's White Rocks at Texas occupy the leading position in their breed to date.

Heaviest producing pen during April was Harco Orchards' Rhode Island Red team at Storrs, which shelled out 360 eggs, good for 390 points.

W. A. Seidel's White Leghorn hen at Texas has the best score to date with 209 eggs, 229.1 points.

Twenty Highest Pens, All Breeds, to May 1—(212 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	2462	2611.05	Georgia
J. A. Hanson	White Leghorn	2459	2608.20	Storrs
E. B. Parmenter	Rhode Island Red	2338	2503.60	Maine
L. D. Bartholomew	Rhode Island Red	2284	2437.40	Storrs
J. J. Warren	Rhode Island Red	2286	2434.90	Long Island
G. B. Treadwell	Rhode Island Red	2274	2386.00	Maine
J. J. Warren	Rhode Island Red	2250	2379.30	Texas
H. J. Hardin	Rhode Island Red	2281	2377.30	Georgia
Harco Orchards	Rhode Island Red	2234	2369.85	Storrs
E. B. Parmenter	Rhode Island Red	2267	2368.90	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	2315	2365.15	Paterson, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	2293	2340.25	Texas
J. J. Warren	Rhode Island Red	2162	2331.10	Maine
Rapp's Poultry Farm	White Leghorn	2234	2328.60	Hunterdon, N. J.
Booth Farms & Hatchery	White Leghorn	2226	2326.65	Georgia
J. A. Hanson	White Leghorn	2204	2326.60	Rhode Island
J. A. Hanson	White Leghorn	2221	2325.05	Storrs
Richard H. Gee	Rhode Island Red	2241	2323.70	Rhode Island
E. B. Parmenter	Rhode Island Red	2161	2319.75	Rhode Island
W. H. Wilson	Rhode Island Red	2302	2308.75	Georgia

High Pen in Each Standard Test to May 1—(212 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	2462	2611.05	Georgia
J. A. Hanson	White Leghorn	2459	2608.20	Storrs
E. B. Parmenter	Rhode Island Red	2338	2503.60	Maine
J. J. Warren	Rhode Island Red	2286	2434.90	Long Island
J. J. Warren	Rhode Island Red	2250	2379.30	Texas
E. B. Parmenter	Rhode Island Red	2267	2368.90	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	2315	2365.15	Paterson, N. J.
Rapp's Poultry Farm	White Leghorn	2234	2328.60	Hunterdon, N. J.
J. A. Hanson	White Leghorn	2204	2326.60	Rhode Island
Crescent Farms	White Leghorn	2188	2291.90	Florida
J. J. Warren	Rhode Island Red	2138	2278.90	Missouri
Crooks Farm	Rhode Island Red	2135	2246.15	Pennsylvania
E. B. Parmenter	Rhode Island Red	2140	2235.95	California
J. J. Warren	Rhode Island Red	2137	2217.55	Western New York
Gold Spot Hatchery	White Leghorn	2008	2139.40	Arizona
Bodine's Pedigreed Leghorns	White Leghorn	2167	2125.50	Central New York
Foreman Poultry Farm	White Leghorn	2072	2082.95	Oklahoma
J. J. Warren	Rhode Island Red	1928	2038.50	Michigan

High Pen in Each Standard Test for April

Owner	Breed	Eggs	Points	Test
Harco Orchards	Rhode Island Red	360	390.10	Storrs
T. N. Wilcox	Barred Rock	341	371.80	Georgia
Roselawn Poultry Farm	White Leghorn	348	369.65	Western New York
Sand Springs Home Farm	White Leghorn	347	365.10	California
E. B. Parmenter	Rhode Island Red	346	363.90	Paterson, N. J.
Rich Poultry Farm	White Leghorn	345	363.35	Central New York
J. A. Hanson	White Leghorn	330	355.45	Pennsylvania
Thomas Mettler	Rhode Island Red	328	351.20	Passaic, N. J.
Walter Cochran	White Leghorn	324	346.70	Arizona
R. C. E. Wallace	Barred Rock	325	343.05	Long Island
Richard H. Gee	Rhode Island Red	317	341.05	Rhode Island
R. C. E. Wallace	Barred Rock	314	337.20	Oklahoma
Lone Oak Leghorn Farm	White Leghorn	311	336.55	Florida
E. B. Parmenter	Rhode Island Red	309	335.85	Maine
Ford's Riverbank Farm	Rhode Island Red	310	334.30	Missouri
Crooks Farm	Rhode Island Red	306	332.25	Michigan
J. W. Schaible	Barred Rock	309	331.20	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	314	328.30	Texas

High Pen in Each Breed to May 1—(212 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	2462	2611.05	Georgia
J. A. Hanson	White Leghorn	2459	2608.20	Storrs
E. B. Parmenter	S. C. Rhode Island Red	2338	2503.60	Maine
Thomas J. Harrold	New Hampshire	2238	2297.35	Georgia
Carter-Dunham	White Rock	1881	1941.90	Texas
Paul Hansen	Black Australorp	1830	1859.20	California
Raymond S. Thomas	Ancona	1847	1802.60	Pennsylvania
Harvey E. Taylor	White Wyandotte	1839	1789.05	Texas
Iowa Master Breeders	R. C. Rhode Island Red	1602	1692.55	Texas
E. J. Covey	Black Minorca	1492	1546.45	Texas
Illinois Hatchery	Brown Leghorn	1466	1515.95	Texas
Superior Hatchery	Light Brahma	1346	1423.25	Texas
Lindstrom Poultry Farm	Buff Minorca	1472	1406.90	Texas
S. E. Raymond	Lamona	1216	1289.45	Storrs
Ward's Poultry Farm	Buff Leghorn	1287	1265.40	Oklahoma
Howard C. Jones	Buff Orpington	1232	1257.40	Florida
Raymond Murphy	White Giant	1144	1217.35	Missouri
Colonial Poultry Farms	White Minorca	926	1001.75	Missouri

High Hen in Each Breed to May 1—(212 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	209	229.10	Texas
E. B. Parmenter	S. C. Rhode Island Red	207	225.50	Rhode Island
T. N. Wilcox	Barred Rock	200	216.70	Georgia
Colonial Poultry Farms	New Hampshire	195	214.10	Texas
Lindstrom Poultry Farm	White Rock	198	208.80	Georgia
Paul Hansen	Black Australorp	176	188.30	California
Iowa Master Breeders	R. C. Rhode Island Red	174	188.20	Texas
Harvey E. Taylor	White Wyandotte	177	188.00	Texas
S. E. Raymond	Lamona	165	172.80	Storrs
Superior Hatchery	Light Brahma	165	169.15	Texas
Raymond Murphy	White Giant	148	161.70	Missouri
Raymond S. Thomas	Ancona	155	158.85	Pennsylvania
Howard C. Jones	Buff Orpington	149	157.90	Florida
E. J. Covey	Black Minorca	147	154.00	Texas
Lindstrom Poultry Farm	Buff Minorca	144	152.85	Texas
Illinois Hatchery	Brown Leghorn	157	149.10	Texas
Ward's Poultry Farm	Buff Leghorn	128	125.15	Oklahoma
Colonial Poultry Farms	White Minorca	111	121.40	Missouri

High Hen in Each Standard Test to May 1—(212 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	209	229.10	Texas
E. B. Parmenter	Rhode Island Red	207	225.50	Rhode Island
E. B. Parmenter	Rhode Island Red	208	223.05	Storrs
Foreman Poultry Farm	White Leghorn	205	220.85	Georgia
G. B. Treadwell	Rhode Island Red	200	217.50	Maine
Rapp's Poultry Farm	White Leghorn	198	217.20	Hunterdon, N. J.
Missouri Valley Hatchery	Rhode Island Red	196	214.40	Missouri
A. M. Wolgemuth	White Leghorn	204	214.15	Pennsylvania
Missouri Valley Hatchery	Rhode Island Red	199	213.60	Oklahoma
W. A. Seidel	White Leghorn	195	212.25	Arizona
Foreman Poultry Farm	White Leghorn	196	212.00	Passaic, N. J.
J. J. Warren	Rhode Island Red	200	209.75	Western New York
Ned C. Willoughby	New Hampshire	196	208.50	Florida
J. J. Warren	Rhode Island Red	190	208.15	Long Island
E. B. Parmenter	Rhode Island Red	191	204.70	Paterson, N. J.
J. A. Hanson	White Leghorn	190	202.60	California
Foreman Poultry Farm	White Leghorn	192	196.75	Michigan
R. C. E. Wallace	Barred Rock	183	195.75	Central New York

Twenty Highest White Leghorn Pens in Country to May 1

Owner	Eggs	Points	Test
J. A. Hanson	2459	2608.20	Storrs
Kauder's Pedigreed Leghorns	2293	2340.25	Texas
Rapp's Poultry Farm	2234	2328.60	Hunterdon, N. J.
Booth Farms and Hatchery	2226	2326.65	Georgia
J. A. Hanson	2204	2326.60	Rhode Island
J. A. Hanson	2221	2325.05	Storrs
Crescent Farms	2188	2291.90	Florida
Burr's Poultry Farm	2200	2236.85	Pennsylvania
J. A. Hanson	2125	2212.10	Pennsylvania
Rochelle Egg Farm and Hatchery	2183	2189.10	Texas
Hollywood Poultry Farm	2242	2160.70	Georgia
McCoon's Poultry Breeding Farm	2154	2151.95	Texas
George M. Heberer	2059	2144.90	Florida
George M. Heberer	2078	2142.40	Texas
Gold Spot Hatchery	2008	2139.40	Arizona
J. A. Hanson	2059	2128.75	Passaic, N. J.
Bodine's Pedigreed Leghorns	2167	2125.50	Central New York
Erath Egg Farm	2136	2125.45	Texas
Guy A. Leader	2016	2123.65	Pennsylvania
Thomascello Leghorn Breeders	2020	2115.70	Florida

Twenty Highest Rhode Island Red Pens in Country to May 1

Owner	Eggs	Points	Test
E. B. Parmenter	2338	2503.60	Maine
L. D. Bartholomew	2284	2437.40	Storrs
J. J. Warren	2286	2434.90	Long Island
G. B. Treadwell	2274	2386.00	Maine
J. J. Warren	2250	2379.30	Texas
H. J. Hardin	2281	2377.30	Georgia
Harco Orchards	2234	2369.85	Storrs
E. B. Parmenter	2267	2368.90	Passaic, N. J.
E. B. Parmenter	2315	2365.15	Paterson, N. J.
J. J. Warren	2162	2331.10	Maine
Richard H. Gee	2241	2323.70	Rhode Island
E. B. Parmenter	2161	2319.75	Rhode Island
W. H. Wilson	2302	2308.75	Georgia
Roberts Poultry Farm	2149	2308.35	Storrs
E. B. Parmenter	2191	2297.75	Long Island
J. J. Warren	2138	2278.90	Missouri
G. B. Treadwell	2171	2274.75	Storrs
E. B. Parmenter	2191	2272.50	Georgia
J. J. Warren	2171	2255.00	Storrs
Crooks Farm	2135	2246.15	Pennsylvania

Twenty Highest New Hampshire Pens in Country to May 1

Owner	Eggs	Points	Test
Thomas J. Harrold	2238	2297.35	Georgia
Colonial Poultry Farm	2158	2283.45	Texas
Williamson's New Hampshire	2136	2252.55	Florida
George A. Pearce	2161	2182.80	Hunterdon, N. J.
M. L. Estabrook	2076	2148.65	Maine
C. D. Cummings	2155	2126.45	Georgia
Joachim Breeding Farm	2029	2121.05	Long Island
James H. Horne	1964	2102.65	Storrs
A. L. Frees	1977	2073.20	Arizona
W. G. Ashby	1944	2022.50	Arizona
Pine Mountain Valley Farms	2032	2010.35	Georgia
Gold Spot Hatchery	1902	1999.75	Arizona
A. J. Williams	1969	1999.55	Florida
G. E. Nemec	1883	1990.00	Arizona
Ned C. Willoughby	1950	1985.40	Georgia
Ned C. Willoughby	2103	1978.55	Georgia
Joachim Breeding Farm	1825	1977.10	Storrs
Ned C. Willoughby	1957	1957.90	Florida
A. J. Williams	1843	1949.50	Florida
Hank's Hennery	1834	1934.50	Storrs

Twenty Highest Barred Plymouth Rock Pens in Country to May 1

Owner	Eggs	Points	Test
T. N. Wilcox	2462	2611.05	Georgia
T. N. Wilcox	2099	2213.65	Florida
J. W. Schaible	2127	2185.35	Hunterdon, N. J.
David T. Cohen	2023	2146.65	Pennsylvania
A. J. Urquhart	2044	2133.10	Storrs
Dryden Poultry Breeding Farm	2070	2123.20	California
Dryden Poultry Breeding Farm	2018	2088.25	Storrs
Dryden Poultry Breeding Farm	2019	2036.65	Pennsylvania
David T. Cohen	1896	2017.10	Arizona
David T. Cohen	1983	2006.75	Storrs
Foster Jameson	1893	1997.90	Maine
Booth Farms and Hatchery	1872	1989.35	Missouri
E. B. Parmenter	1916	1979.75	Pennsylvania
Dryden Poultry Breeding Farm	1880	1975.05	Missouri
Fuzzydele Farms	1895	1947.90	Storrs
David T. Cohen	1844	1933.35	Georgia
Ellsworth V. Stanley	1828	1922.55	Pennsylvania
R. C. E. Wallace	1864	1897.10	Long Island
P. N. Hibbard	1939	1896.30	Storrs
Piho Brothers	1934	1887.40	Maine

Twenty Highest White Plymouth Rock Pens in Country to May 1

Owner	Eggs	Points	Test
Carter-Dunham	1881	1941.90	Texas
Albert C. Lawton	1922	1898.50	Storrs
Colonial Poultry Farms	1760	1871.70	Oklahoma
Kalerok Farm	1753	1865.00	Rhode Island
Alfred Mac Millan	1797	1808.85	Texas
Booth Farms and Hatchery	1778	1771.60	Texas
C. W. Winkler	1694	1770.70	Oklahoma
Carter-Dunham	1756	1762.05	Georgia
Hillview-Imperial	1707	1724.95	Storrs
Airy View Farm	1668	1723.20	Hunterdon, N. J.
Booth Farms and Hatchery	1597	1710.60	Missouri
John Spangenberg	1657	1705.75	Pennsylvania
Carter-Dunham	1631	1704.75	Storrs
Riley Poultry Farm	1699	1687.35	Texas
McDonald Hatchery	1596	1679.60	Texas
Riley Poultry Farm	1727	1671.30	Michigan
Drumm Egg Farm	1608	1657.85	Georgia
Missouri Valley Hatchery	1555	1635.10	Missouri
Homestead Farm	1720	1607.10	Pennsylvania
Knepley Hatchery	1578	1603.15	Oklahoma

Average Production and Mortality in Each Test to May 1

Test	No. Birds	Eggs Per Bird	Points Per Bird	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Apr.	Per Cent Mortality to Date
Arizona	390	135.15	140.68	24.96	.51	8.97
Texas	1,300	136.80	139.73	24.50	2.76	10.15
Storrs	1,300	133.76	137.76	24.69	1.15	8.76
Rhode Island	546	128.13	134.91	25.24	1.64	10.07
Pennsylvania	1,027	132.09	134.32	24.36	1.55	9.83
Georgia	1,300	132.40	133.22	24.14	1.92	12.38
Florida	1,248	129.09	131.90	24.50	2.08	10.49
Hunterdon, N. J.	650	125.93	128.84	24.55	1.38	10.15
Passaic, N. J.	1,014	123.79	125.65	24.33	1.18	9.66
California	650	122.09	125.42	24.64	1.23	6.76
Paterson, N. J.	169	121.08	124.39	24.64	1.18	11.24
Oklahoma	650	122.20	123.17	24.16	1.07	10.30
Maine	975	120.30	121.64	24.26	1.43	9.23
Missouri	780	111.81	118.74	25.46	2.94	13.20
Long Island	1,131	116.79	117.88	24.21	1.76	7.33
Western New York	884	108.95	112.80	24.84	.90	6.90
Central New York	910	107.67	109.66	24.43	1.53	8.46
Michigan	780	97.33	97.62	24.07	1.28	13.84
All Tests	15,704	123.31	126.02	24.05	1.68	9.83

High Pen in Each Breed, Vineland, N. J., Hen Test to May 1

Owner	Breed	Eggs	Points	Class
J. J. Warren	Rhode Island Red	1161	1268	Two-Year
Sebold Poultry Farm	White Leghorn	1150	1253	Two-Year
Vaughn's Hatchery	New Hampshire	1058	1141	Two-Year
Pleasant Valley Farm	White Rock	1011	1100	Two-Year
Eben Wood	Barred Rock	841	912	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	901	982	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	491	535	Four-Year
J. J. Warren	Rhode Island Red	470	504	Four-Year
Dembro Poultry Farm	White Leghorn	1265	1370	Mixed-Age
Schwegler's Hatchery	Barred Rock	1062	1132	Mixed-Age
Wene Chick Farms	New Hampshire	872	941	Mixed-Age
Quimby School	White Rock	815	852	Mixed-Age
Kerr Chickeries	Rhode Island Red	781	850	Mixed-Age
Schwegler's Hatchery	White Wyandotte	715	759	Mixed-Age

High Pen in Each Breed, Vineland, N. J., Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
E. B. Parmenter	Rhode Island Red	5064	5400	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	5061	5353	Two-Year
Eben Wood	New Hampshire	4278	4623	Two-Year
Eben Wood	Barred Rock	4121	4428	Two-Year
E. R. Rutter	White Rock	4208	4381	Two-Year
Kauder's Pedigreed Leghorns	White Leghorn	7421	8024	Three-Year
Kauder's Pedigreed Leghorns	White Leghorn	8016	8659	Four-Year
J. J. Warren	Rhode Island Red	7461	8013	Four-Year

High Pen in Each Breed, Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Crooks Farm	Rhode Island Red	4999	5326.75	Two-Year
Lindstrom Poultry Farm	White Leghorn	4937	5277.60	Two-Year
Schwegler's Hatchery	White Wyandotte	4544	4719.85	Two-Year
E. B. Parmenter	Barred Rock	4308	4505.25	Two-Year
Pine Top Poultry Farms	New Hampshire	4140	4348.60	Two-Year
Claribel Henault	White Rock	4023	4182.40	Two-Year
Schwegler's Hatchery	White Leghorn	7300	7677.15	Three-Year
J. J. Warren	Rhode Island Red	7302	7460.95	Three-Year

High Pen in Each Breed, Pennsylvania Hen Test to May 1

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	1367	1495.05	Two-Year
Crooks Farm	Rhode Island Red	1374	1492.85	Two-Year
Schwegler's Hatchery	White Wyandotte	1329	1430.15	Two-Year
E. B. Parmenter	Barred Rock	1023	1106.60	Two-Year
Pine Top Poultry Farms	New Hampshire	1012	1084.30	Two-Year
Claribel Henault	White Rock	874	950.05	Two-Year
Schwegler's Hatchery	White Leghorn	1164	1250.75	Three-Year
J. J. Warren	Rhode Island Red	966	1054.40	Three-Year
R. H. Barteaux	White Leghorn	1171	1263.35	Mixed-Age
E. B. Parmenter	Barred Rock	1046	1134.75	Mixed-Age
E. B. Parmenter	Rhode Island Red	983	1070.30	Mixed-Age
Fuzzydele Farms	New Hampshire	815	884.25	Mixed-Age

High Pen in Each Breed, Illinois Non-Standard Test to May 1

Owner	Breed	Eggs	Points
Belldear Hatchery	White Rock	1197	1246 25
Walter Swanson	White Leghorn	1192	1167.45
Illinois Hatchery	Barred Rock	1125	1143.55
Belldear Hatchery	White Wyandotte	1035	1118.85
Coyne Poultry Breeding Farm	New Hampshire	1037	1071.70
Wallace Moody	Buff Rock	1024	1034.60
Illinois Hatchery	Rhode Island Red	971	1015.25
Illinois Hatchery	Brown Leghorn	824	883.90
Berry-Ajax Hatchery	Black Australorp	534	529.90

Questionnaire is Trouble Detector

This year we issued a questionnaire asking flockowners what they fed, how often they gathered, and where they stored their eggs, etc. This questionnaire, filled out and returned for our records, proved to be the best trouble detector we've ever had.

—Mrs. R. V. Jared, Hatchery Tribune, May, 1941.

NATIONAL

POULTRY DIGEST

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Poultry Industry Aids Defense Program

By J. W. KINGHORNE
Surplus Marketing Administration

Reprinted from Everybodys Poultry Magazine

WHEN the poultry industry, involving over 5 million producers, and the national defense program start "clicking" within 60 days — that's news. Yes, that is exactly what has happened in this industry of ours, for facts and figures show definitely that we are now just as much a part of the defense activities as ship and plane construction, munitions, and all other phases of the awakening of Democracy.

Before we review what we are doing and how we are doing it, let us summarize briefly how and why we have merged with this gigantic plan to maintain our democratic status.

The Lend-Lease Act, which became effective March 11, inaugurated the real beginning of our defense program. This was followed on April 3 with an announcement by Secretary Wickard regarding an expansion of the Ever-Normal Granary Program into a Food for Defense Program, which included poultry and eggs as two of the four commodities involved. Just 13 days later, on April 16, a specific appeal was made to poultry raisers and farmers to produce more eggs to meet the needs for our domestic

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use and export to England and other nations resisting aggression. To back up this appeal, the Government gave the producer assurance of adequate feed supplies at fair prices and a supporting price for both poultry and eggs.

Wickard's Statement

In the announcement made by Secretary Wickard previously referred to, it was stated:

"Assuming continuation of existing price relationships and taking seasonal price variations into account, the Department will make purchases in the open market to support long term prices (Chicago basis) at levels approximately as follows: Chickens, pound 15 cents, and eggs, dozen 22 cents."

These announced supporting prices have not been generally understood or correctly interpreted by the industry. Therefore, an explanation is in order. Referring again to the above quoted passage from the April 3 announcement, it says, "Assuming continuation of **existing price relationships . . .**" This means price relationships between not only these commodities with other food products, and the prices of things that producers buy, but also the price relationships between poultry products and the grains needed for production. To continue, "**seasonal price variations,**" refers, of course, to seasonal price fluctuations, which obviously are a factor that would influence the level of the supporting price in each case.

What "Chicago Basis" Means

Considering these qualifying factors, the Department will make purchases in the open market to support long term prices, using the Chicago market as a basis. Furthermore, it is pointed out that these prices would be subject to customary commercial differentials for market grades and qualities. Some people do not seem to understand that Chicago basis means prices on the Chicago market. There will be the usual relationship over the country with the Chicago market. In some areas farm prices will be below the Chicago level and in others above.

Unfortunately, some members of the press interpreted these announced supporting prices as "pegged" prices and also as minimum prices. In neither case is this correct. These supporting prices should be considered as average or general price levels over a considerable period, and equivalent to a substantial advance over average prices during recent years. Furthermore, they should not be interpreted as a commitment to the price of a given grade at any particular time.

What About Grain Prices?

With the continued operation of the Ever-Normal Granary Program, and the announced coordination of this with the Food for Defense Program, the industry has been assured by the Secretary that plentiful supplies of grain at reasonable prices will be available. In fact, one of the principal phases of this whole plan is the continuation of the policy of making loan corn, for instance, available to producers at the loan rate plus certain carrying charges.

Importance of Production

In a talk at New York City recently, Milo Perkins, Administrator of the Surplus Marketing Administration, said:

"In an effort such as the democracies of the world are making today, you can't win a war with dollars, except as your dollars buy things. This is a war of production."

The purpose of this whole program is obviously that of production, and the object of the Government's purchases of such products in the open market is to accumulate reserve supplies for increased domestic and export use. Under the terms of the Lend-Lease Act, these supplies can be used for transfer to Britain and other countries, to meet requests from the Red Cross for shipment to war refugee areas, and for use through school lunch programs or State welfare departments to public aid families. Furthermore, they can be used, if necessary, for release upon the market in case of unwarranted speculative price increases.

These possible and actual uses constitute outlets in addition to our generally accepted normal channels of consumption. Then, too, it must be remembered that, with increased earning power due to defense activities, our domestic demand stands to increase, to say nothing of the greater use of poultry and eggs by our armed forces. Each of these factors constitutes a very important reason why the production of poultry products must be increased and maintained during this emergency period.

Government Supports Market

From January of this year up to March 14, the Surplus Marketing Administration of the Department purchased about 200,000 cases of shell eggs for relief and school lunch use. Since March 14, and up to June 1, purchases of shell, dried, and frozen eggs totaled the equivalent of 1,360,000 cases. Purchases this year represent an increase of more than 330,000 cases above the same period of 1940.

The Agricultural Marketing Service, as of May 15, gave the U. S. average price received by farmers as 20.1 cents a dozen. This may be compared with 19.7 cents on April 15, 16.4 cents on March 15, and 15.1 cents as of May 15, 1940. In other words, the average U. S. farm price on May 15 was 5 cents a dozen higher than a year ago. The apparent conclusion that can be drawn from these figures is that, beginning in

March of this year, with increased purchases of eggs by the Government and resulting support of the market, egg prices to producers have shown a consistent increase. Thus, within 60 days after the Food for Defense Program was announced, the Government, through its purchase activities, swung into action and supported prices so producers had encouragement to increase production.

How to Stimulate Production

Realizing the actual needs for poultry products to satisfy domestic and export uses, as previously outlined, it was apparent that steps be taken to stimulate production at once. Careful consideration was given to all phases of our production possibilities, as well as to the estimated requirements, by the Department Committee that was assigned the task of developing a plan to increase production. It was estimated that 1941 hatching operations should be increased so as to result in about 15 per cent more chicks raised than in 1940.

Judging from the April hatchery report and estimated increased production, based on chicks ordered for later delivery, it may be reasonable to suppose that the goal of 15 per cent more chicks raised this year and about 10 per cent more laying birds on farms this fall is well assured. This was indeed a remarkably prompt response on the part of the industry to insure adequate egg production next fall and winter, and to increase such production by 6 per cent (about 10 million cases) during the coming 12 months.

Avoid Over-Production

In order to avoid the pitfalls of over-production, conservatism has been the keynote of this program to increase poultry and egg supplies. For instance, it is not recommended that new houses be built or quantities of new equipment be purchased. Instead, it is advised that available unused housing facilities be utilized. A recent survey, in cooperation with state poultry specialists, shows that there are unused poultry house facilities to take care of a 15 to 20 per cent increase in layers.

Ample feeding and a plentiful supply of water for the growing stock and layers is also strongly endorsed. These, together with other recognized practices of good management, will insure properly matured stock and higher production of eggs this summer from present layers, which will be needed before the young stock comes into laying this fall. Another recommendation that is being made to stimulate the quantity of eggs produced this summer and in the early fall months is to carry over into the second laying year all potential layers, eliminating only culls and birds that are out-of-condition.

Reference has previously been made to the probable increased hatch this late spring that will bring the number of chicks raised this year to 15 per cent over 1940. This is but one of the several indications of how quickly the poultry industry responded to the appeal to increase production. Another very positive indication, and one that reflects the situation in the great egg producing area of the Central Western States, is the weekly report of receipts of fowl at the primary markets in that area.

On April 10, before the program to increase production was announced, receipts of fowl at those markets was 16 per cent over last year. The following week, receipts dropped to 5 per cent less than a year ago. The week of April 24, receipts were 16 per cent less. On May 2, they dropped to 36 per cent less, and each week since then, up to June 1, receipts of fowl have averaged about 19 per cent less than the corresponding periods of last year. This apparently means that farmers in that area are holding more layers than they did last year in order to respond to the Government's pleas for more eggs NOW! Other sections have taken similar action by withholding their better layers and marketing only the culls.

Better feeding and proper management are equally important to insure this desired production. But with farmers and poultrymen generally responding so quickly to the initial phases of this program, it is reasonable to suppose that they will carry through and do their part to produce the needed Food for Defense.

Grade Your Pullets

Many growers pass up an important job in raising chickens for their flock replacements — pullet grading. When the birds are graded and classified into two or three separate groups, the smaller pullets are given a better chance to develop normally. Demonstrations have shown that the smaller birds will grow quite satisfactorily if kept to themselves where they do not have to fight larger birds for a place at the feed trough. Records indicate that the slightly retarded birds will develop satisfactorily, and will produce almost as well, with but little greater mortality than the more quickly maturing pullets. The job may well be done as soon as a noticeable difference in development is observed.

—**Pacific Rural Press.**

How Priorities May Affect Poultrymen

By A. RANDALL SANFORD

Condensed from Washcoegg

THERE'S nothing very new about that word—"priorities." It's been in the English language a long, long time. It had its place in this country's war effort in 1917-1918. Now it has come to light again, and is making its effect felt in every segment of American life.

Aluminum provides the best example of how priorities work. Aluminum is one of the most important items in the defense program. Planes, in particular, and other tools of defense require immense quantities of this metal — so much that the nation's limited facilities for producing aluminum can't hope to supply defense industries and still keep factories manufacturing non-defense products supplied.

The shortage of this vital metal will probably make a very noticeable effect upon the average American's way of life. There won't be nearly as many new cars manufactured in 1942. Shiny new aluminum refrigerator trays won't be available for home production of ice cubes. Electric household appliances are also frequently mentioned as likely to feel the effect of the aluminum scarcity.

OPM's priorities division, working with other units of the defense set-up, determines just how much aluminum shall be channeled into defense industry. What is left it allocates to makers of non-defense products as it sees fit. With variations to fit the individual situation, other supplies are going into defense and non-defense use on a similar priority basis.

It is gratifying to be able to report that, so far, priorities are not seriously affecting the poultry industry. Dozens of other industries would like to be able to say as much. But there are potential trouble points, and it is the aluminum shortage which threatens to acquaint poultrymen with the government's priority operations.

One of the smallest items that figures in poultry raising has come the closest to providing a priority headache—the aluminum identification band. Leg bands and wing bands are both involved. For years they have been manufactured of thin aluminum strips. It's hard to imagine that such tiny aluminum products could hold up the defense program. But those bands add up fast, and it is surprising how few provide the aluminum equivalent of some very important part in an Army pursuit plane, for example.

Whether or not manufacturers of leg and wing bands will find their entire supply of aluminum cut off remains to be seen. But it's a fact that they are doing some tall hustling to find usable substitute materials. Copper, which isn't in such heavy defense demand, appears likely to fill the need for leg bands. Finding a substitute for wing bands may not be as simple, because there is the fear of a toxic effect if the bird's wing is slit and contact made with a metal band.

Manufacturers are reported to have a fairly adequate supply of bands on hand, so time is available in which they can search for substitutes without requiring poultrymen to go without new bands.

Incubators and brooders which use parts of aluminum or of stainless steel — another item on the priorities list — are mentioned frequently when the priorities subject comes up. Folks at the Department of Agriculture seem to be little concerned, though, about this poultry equipment.

It is true that manufacturers will probably find it difficult to obtain the necessary metals for extensive production of new equipment. But USDA people point out that actually the industry could get by if not a single new incubator or brooder were manufactured for a year or two.

They feel that there is adequate equipment of this type already in poultrymen's hands. But they stress one point. If equipment wears out, or needs new parts, there will definitely be enough metal and other materials so that the industry need fear no actual equipment shortage at any time. USDA, through its close cooperation with OPM, has received certain assurances that the priorities division will make such materials available to manufacturers as needed.

The Department has come across just one or two instances of possible priority problems in the egg breaking industries. One manufacturer was concerned lest he be unable to obtain stainless steel for table tops. Another has seen the possibility that the aluminum cups used so extensively in egg breaking might not be available, adding the observation that glass isn't too desirable for these cups. Some of the new plastic materials on the market probably will meet the needs of these plants and others that find similar problems developing.

In fact, the plastics which have taken hold so strongly in industry in recent years may serve in many such instances where non-defense plants must find substitutes. It is worthy of note that many of these plastics are derived from farm products—soybeans, cotton, and dozens of others. Priorities may prove to be

Washington Co-operative Egg and Poultry Assn., Seattle, Wash.
(Washcoegg, June, 1941)

a blessing in disguise to agriculture if the demand for farm-produced plastics becomes heavy. Such a demand might very likely carry over into permanent industry utilization after the war.

Factors Affecting Capon Profits

In order to obtain a reasonable labor income from producing capons, it is necessary to carry out good business practices. It is very essential that intelligent decisions be made at the proper time, otherwise production costs rapidly consume labor income returns. There are two general groups of factors which affect profits. There are:

1. Those which are beyond the control of the producer.
2. Those which are producer controlled.

When Do the Best Fail?

Many producers who follow recommended practices lose money during certain years. This is often due to very high feed prices, heavy poultry supplies, either in storage or on the market, or poor consumer demand, which causes low market prices. These factors are beyond the control of the individual producer. Outlook reports are published by the Bureau of Agricultural Economics of the U. S. D. A. These reports consider supply and demand in the various agricultural commodities, and predict with a good degree of accuracy what the prospects of feed and market prices are likely to be for the coming year. It is therefore desirable for the producer to consider these prospects before starting in the capon business. Certainly, for the beginner at least, it would not be advisable to enter the capon business on a large scale if feed costs and market conditions were unfavorable. Very often a business is condemned by a beginner who gets a start at the wrong time. On the other hand, some mistakes can be made and a suitable labor income realized, provided conditions of production and marketing are favorable.

Keep Expenses Down

If the producer is to obtain a fair labor income, it is essential that production and marketing costs be kept as low as possible. The following factors have an appreciable effect upon the cost of producing capons.

1. Feed costs
2. Rate of growth
3. Mortality costs
4. Time of marketing
5. Prices received for poultry

—Excerpt from South Carolina Agricultural Experiment Station Bulletin 335.

Variations in Quality of Feedstuffs

By C. W. SIEVERT
Chicago, Illinois

Reprinted from Poultry Science

MANY of the feed materials used in compounding rations for poultry are by-products produced in making human foods. Meat products, fish meals, milk products, wheat mill feeds, and certain corn products are in this classification. If changes are made in the milling or manufacturnig processes used in producing these feeds, we should be looking for possible changes in their feeding values.

Some products resulting from the production of edible and industrial oils are also available for poultry feeding purposes. The alfalfa products are prepared for use as feedstuffs, principally for poultry feed. One may also include the cereal grains as being worthy of attention in a general feedstuffs survey.

Meat Products

In general, one may safely say that more meat products are being dry rendered and relatively less are being steam rendered under pressure. On the average, this results in relatively higher nutritive values being retained.

Equipment for dry rendering is such that it may be operated on smaller quantities of raw materials than when pressure tank rendering is done. Dry rendering, therefore, results in somewhat more prompt processing of meat products.

The statement has quite often been made that meat scraps and meat and bone scraps are now lacking the proportion of liver that they formerly contained because of increased demand for liver products in the pharmaceutical and feeding fields. Let us remember that edible livers never did go into feed products. Inedible livers in some instances are not going into the rendering kettles, while in other packing plants they are going there the same as they have been for years. The relative proportion of liver present in meat scraps or meat and bone scraps has never been great, but a comparatively small amount of liver does bring about an appreciable increase in the riboflavin content of these products. In rations that contain only a small amount of riboflavin-containing ingredients, flavin content of the meat scraps may be of importance.

Some of the larger feed manufacturers are making riboflavin assays

From "Effect of Changes in Milling and Manufacturing of Feeds on Their Nutritional Value" (Poultry Science, May, 1941) of the meat products they receive and use, and in that way are helping to make their feeds more uniform. It is suggested that meat products used in experimental work be assayed for free fatty acid and riboflavin content, as well as for protein and mineral content.

Fish Meal

The quality of fish meals has improved steadily in the last decade. The methods of applying heat during the drying process and the effect of heat on protein quality have been studied. The need for the immediate drying of fish scrap in order to avoid any decomposition has also been thoroughly established. Fish meals are now quite uniform within each of the several types and sources that are available. In this field also, a determination of riboflavin content helps in judging the relative quality of the product. The moisture, protein, and mineral content should not be overlooked, either.

Milk Products

With the exception that in recent years more care is being exercised to avoid scorching during the drying process, there is no change in the method of preparing milk products that are used in poultry feeds. Scorched milk products should be avoided, especially in compounding experimental rations.

It would be well to pay some attention to the ash content of dairy products, since excessive ash content may indicate the use of neutralizers to reduce excess acidity. Excessive neutralization brings about riboflavin destruction during drying. A riboflavin determination would settle that part of the question.

Very recently, evidence has been developed indicating the possibility of wide variations in the flavin content of buttermilk. This makes it a practical necessity to assay buttermilk for riboflavin content when that vitamin is a possible factor in the ration. In fact, it would seem wise to determine the flavin content of all dairy products used in poultry rations.

Wheat Mill Feeds

This class of feedstuffs, although one of the oldest and largest in volume, is lacking in uniformity. These products result from the milling of winter wheat and spring wheat, high protein and low protein wheat, and hard and soft wheat. In certain parts of the country, the wheat feeds are called bran, standard middlings, flour middlings, red dog flour, and low grade flour. In other parts, they are bran, brown shorts, gray shorts, white shorts, and low grade flour, with red dog sometimes also produced. In some parts of the country, we find all the by-products of wheat milling mixed together and designated wheat mixed feed, commonly also called mill run. A further complication is brought about, especially with regard to bran, middlings, and shorts, because they are available with and without the addition of ground screenings not exceeding mill run.

All these products are defined by the American Association of Feed Control Officials, and that association has established fiber content limits for most of these wheat feeds. Possibly, a fiber determination would help clarify any uncertainty that might come up with regard to the quality of one or more of the wheat products used in compounding poultry rations.

A considerable amount of attention has recently been focused on the germ content of bran, middlings, or shorts. The advent of wheat germ oil into the commercial feed and pharmaceutical trades has resulted in the separation of wheat germ from these flour by-products in some mills.

Removing Wheat Germ

Regarding the extraction of wheat germ from the wheat mill feeds, there are just a few things that should be pointed out. To get this information I have consulted men who know flour milling and cereal chemistry. They say that only a small percentage of the total mill feed production—estimated from 2 to 10 per cent—has a portion of the germ removed. It is estimated that, at present, it is mechanically possible to remove up to about half of the germ, but further mechanical refinements may be developed from time to time.

This removal of germ would lower the vitamin E content of the resulting wheat feeds possibly in proportion to the germ removal. It would not, however, have a great effect on the thiamin content of the wheat feed, since a much greater proportion of thiamin is present in the non-germ portion of the wheat berry.

There has also been some publicity given to a milling process claiming to make a flour which retains the germ without allowing oxidation or rancidity to interfere with its palatability. This milling process is used in only a few comparatively small mills. Just what the effect has been on the wheat feeds produced has not yet been established.

The determination of the amount of ether extract in the wheat feeds is not of any value in judging the relative amount of germ removed. If it were possible to remove all the germ from the wheat mill feeds, the total fat content would be lowered only about 0.2 per cent, and this is a much smaller amount than the usual variation in fat content in any of these feeds. Determination of fat content, therefore, is not satisfactory for judging the relative amount of germ in the product. The research worker will have to delve into the milling history of the material which he uses in order to know the exact nature of the product he is using.

There have been no differences in the preparation of the feed materials produced by the wet processing of corn. Corn gluten meal, corn gluten feed, and corn oil cake meal are unchanged in composition.

In the dry milling of corn, there may be a tendency to reduce the fat content of hominy feed, if it is possible to do so. This is in keeping with the desires of some swine feeders who use large proportions of hominy feed and who want to avoid soft pork, which is a result of feeding high fat hominy feed in large amounts. This is not of much importance in poultry feeds, since hominy feeds with the lower fat content still contain as much or more corn oil as is found in whole corn.

Oil Meals

Soybean oil meal, cottonseed meal, and linseed meal are used in poultry rations, with the first named the really important one. In recent years, the tendency in soybean oil meal production has been toward adequate heat treatment. The bean proteins are unique in benefitting by heat application – if it is not overdone—whereas most other proteins are lowered in quality by such treatment. Most of the product now on the market is properly heat treated, but it is still wise to make sure of it when using soybean oil meal in experimental rations.

The argument between the mechanical and the solvent methods of extracting the oil of the soybean still goes on. Undoubtedly, more will be learned about these products, since the protein quality side of the question is on a more uniform basis. Further study of fat requirements of poultry and also of the nutritional value of soybean oil may have some effect on the development of the different processes used.

Alfalfa Products

No changes have been made in processing alfalfa in preparation for use in poultry rations. There is, of course, a large difference in the carotene content of the freshly dehydrated alfalfa meals and the fresh field cured products. Since there is evidence showing that time and storage conditions bring about rather great carotene losses in alfalfa meals made from both dehydrated and field cured hay, it would seem reasonable to suggest the determination of carotene in the samples of alfalfa products used in experimental rations.

Since alfalfa is also a good source of riboflavin, the careful investigator will look into the riboflavin content of that material.

Crude fiber content of the alfalfa meal being used in experimental work is also a good yardstick with which to gauge the product, while protein, moisture, and mineral content are not quite so useful, although desirable for a complete description.

These chemical determinations help us in differentiating between alfalfa meal and alfalfa leaf meal. Labels and appearance of the product are not always adequate.

Grains

The grains are used in poultry rations in greater relative amounts than any other class of feedstuffs. During recent years, the production of hybrid corn has increased greatly. At the same time, differences in hardness and palatability of various strains of corn have come to the attention of cattle and swine feeders. At first, hybrid corn was blamed for an apparent lack of palatability, but it is now quite generally agreed that hybrid corn is no more to blame for excessive hardness or other unfavorable characteristics than is open-pollinated corn. The difficulties are traceable to certain strains or families of corn, and not to the method of breeding or production. Possibly, the same general findings apply to poultry. At least the fact that there are differences should be kept in mind.

Feed analysts in many places seem to find a tendency toward a lower crude protein content in corn in the last few years. Some years ago, almost any corn contained at least 9.5 per cent crude protein. Now it seems unsafe to figure it into feed formulas at more than 9 per cent, and I have seen some averages that would lead one to think in terms of even lower protein values. Possibly, this tendency will reverse itself before long.

Let us not forget that oats are not the same in all parts of the United States of America. The oats produced in the East and the Midwest are not of the same weight and composition as oats grown in the Rocky Mountain states. The oats grown in the Pacific Northwest also have different characteristics. Barley on the West Coast and in the Midwest are not exactly alike.

Situation in General

Although his mother had warned him of the distress caused by eating green apples, a boy possessing an inquiring turn of mind ate some, nevertheless. He learned that no great amount of discomfort resulted from this act. So he continued his researches, and later also learned that the unripe fruit from certain trees promptly brought on excruciating pains. He thereby arrived at the conclusion that "all green apples are not green apples." Even so with feedstuffs. Meat scrap are pretty sure to be meat scrap, but there is a possibility that it is meat and bone scrap. Oats are oats, but Iowa oats are not Colorado oats, nor are they Washington oats. Similarly, "fish meal" does not mean the same kind of fish meal in all parts of the country.

We can go on and make similar

comparisons with many of the commonly-used poultry feed ingredients. But enough of that has been done, I believe, to make clear the need for exercising care in the adequate description as well as selection of the feedstuffs used in making poultry rations. This applies not only to experimental rations, but, to an extent at least, to rations that are recommended for practical poultry feeding.

Ranging Pullets on Ladino Clover

Ladino Clover as a poultry range crop has proved its worth at the New York State Institute of Applied Agriculture. This crop, properly handled, will furnish pullets with a palatable, nutritious feed, which will result in large, well-grown, deeply-pigmented pullets, at a reduction in feed costs. Ladino Clover does best on typical clover soil with a good supply of moisture. However, experience during the past three years has shown that it will succeed on fairly light soils and will come back surprisingly well after periods of drought.

At the State Institute of Applied Agriculture, the Ladino Clover mixture is seeded early in April on fall-plowed ground, which, by soil test, indicated the need for lime and phosphate.

This year, our ranges were seeded with 6 lbs. of Ladino clover, 7½ lbs. of Kentucky blue grass, and 7½ lbs. of perennial rye grass, to the acre. Other years, rough stalked meadow grass was included, but this year it was eliminated because of high price.

During the first year, it may be necessary to mow the range to keep the weeds down. On Long Island, ranges seeded in April can often be used by late July.

We have found that by moving the pullet shelters every two weeks, 100 to 200 feet, that bare spots on the range can be practically eliminated. Of course, after each moving, the manure at the old stand is removed.

Range feeders should be moved daily on a Ladino range.

During most seasons, it will be necessary and very worthwhile to keep the range clipped at 3-4 inches high, so as to secure the young plant tips.

During the years when the range is not cropped by pullets, it can be cut as hay or used as a green feed.

—Robert Stockbridge, Press Bulletin of the 19th Annual New York State Egg Laying Test, June 9, 1941.

Changes in the National Plan

News Release from U. S. Department of Agriculture

THE nation's poultry breeders and hatcherymen — cooperating in the National Poultry Improvement Plan—in a 4-day conference in Chicago ending June 20, voted several changes in the Plan. The major changes were these:

All flocks in the Plan must be officially tested for pullorum disease after September 1, 1943. Until now, this provision had been left to the individual states, and already 30 of the 44 cooperating had required it.

Official state agencies may allow participation by dealers in chicks and hatching eggs under provisions similar to those for hatcheries.

Beginning this fall, flocks to be classed as U. S. Pullorum-Tested must contain less than 9 per cent of reactors. This percentage is to decrease one per cent a year until it is less than 5 per cent in the fall of 1945.

A second class, U. S. Pullorum-Controlled, for flocks with less than 2 per cent reactors, was set up. The third class is U. S. Pullorum-Passed (no reactors on one test). The fourth is U. S. Pullorum-Clean (no reactors on two tests).

All eggs from birds in pullorum-control classes—with one exception—must weigh a minimum of 1 11/12 ounces. This minimum egg weight already had been required for all birds in the first three breeding stages—U. S. Approved, U. S. Verified and U. S. Certified. The exception to the minimum egg weight of 1 11/12 ounces is that eggs for the first three breeding stages and the pullorum classes, to be used for hatching broiler chicks, need weigh only 1 10/12 ounces in July, August, September, and October.

There were other — but minor — changes in the Plan, as virtually all of the more than 80 delegates to the conference presented opinions and made suggestions from their state organizations. In all, more than 200 were registered at the Conference. The states not represented were those without organizations under the NPIP.

The National Poultry Improvement Plan was set up six years ago—with an appropriation by Congress and approval of the Secretary of Agriculture — to improve the efficiency of poultry, and to reduce pullorum losses. The plan is cooperative between the states that take part and the U. S. Department of Agriculture. It is supervised by coordinators in the Bureau of Animal Industry.

Paul B. Zumbro of the Bureau,

who presided at most of the meetings, said, "It was a fine gathering. There were many differences of opinion, but everything was settled in a democratic way, after each person had expressed his viewpoint. This conference and the aims of the National Poultry Improvement Plan show that the poultry industry is ready to do its part in the food defense of the nation."

The next national NPIP meeting will be in 1943, at a place to be chosen later. Regional conferences probably will be held in 1942, as in other even years.

A Million Eggs for a Million Soldiers

A million eggs a day will soon be going into sizzling pots and pans to be cooked for the defense Army, according to reports from Washington. The Army ration will provide for at least one egg a day for each soldier.

That is good news, not only for American farmers, but for the Army. Eggs are one of nature's most bountiful protective foods, being rich in essential vitamins and minerals. Eggs are an economical food, too.

This use by the Army of a million or more eggs a day means an increased demand for eggs all over the country.

Food and eggs become one of the most important features for building up our defense ration, and at the same time, our poultry and farm industry.

The "egg a day" for each soldier is more than the average citizen uses.

It is estimated that with an Army of over a million men in the camps by June, nearly three million dozen eggs a month will be used by the Army.

—I. B. C. A. News Release.

Water for Poultry

In proportion to weight, fowls drink twice as much water as beef cattle, sheep, or swine. One-hundred laying hens will drink five gallons of water daily in ordinary weather—much more on hot days. A clean, cool supply of water should be available at all times. There are many different types of watering vessels. A good one should keep the water clean, be easily filled, easily washed, and economical. It should also be constructed so that the water is easily consumed by the chicken.

—Florida Calendar Flock Records.

Control of Avian Coccidiosis

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Other early questions included the relationship of coccidiosis in fowls to turkeys. Again, were blackbirds, sparrows, and other wild birds susceptible to coccidiosis, and if so, was the pathogen identical with that of chickens and turkeys?

Seven Species of Chicken Coccidia

Scientific workers have shown that there are seven species of coccidia affecting the fowl, each of which produces its own type of coccidiosis. Fortunately, some species do not produce serious effects on chicks, growing pullets, or adult birds.

In turkeys, two species of coccidia have been identified, neither of

own species of coccidia, but they, too, may become a mechanical means of spreading other coccidia, by carrying on their feet and feathers the sporulated oocysts from one chicken or turkey yard to another.

Establishing Immunity

When chickens or turkeys consume but a small number of sporulated oocysts, nothing serious happens. In fact, relatively small numbers from 1,000 to 4,000, actually establish a kind of immunity or resistance against later infections involving many thousands. The explanation of why and how this phenomenon occurs is just as obscure to the scientist as is a sat-

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(Veterinary Medicine, May, 1941)

who presided at most of the meet-

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—Florida Calendar Flock Records.

Control of Avian Coccidiosis

By CLIFF D. CARPENTER

Fort Wayne, Indiana

Reprinted from Veterinary Medicine

TWENTY-FIVE YEARS ago, coccidiosis was a new word to the poultry industry. Once research workers thought that "bloody diarrhea" (the first name given coccidiosis) was but another manifestation of pullorum disease. In 1915, the disease was recognized in a few scattered states. Little was known of the life history of the single-celled protozoan parasite, infectious in nature, which caused the disease.

Other early questions included the relationship of coccidiosis in fowls to turkeys. Again, were blackbirds, sparrows, and other wild birds susceptible to coccidiosis, and if so, was the pathogen identical with that of chickens and turkeys?

Seven Species of Chicken Coccidia

Scientific workers have shown that there are seven species of coccidia affecting the fowl, each of which produces its own type of coccidiosis. Fortunately, some species do not produce serious effects on chicks, growing pullets, or adult birds.

In turkeys, two species of coccidia have been identified, neither of which is transmissible to chickens. The reverse is likewise true; not one of the recognized seven species of chicken coccidia is transmissible to turkeys. The practitioner must not overlook, however, the possibility of chickens becoming mechanical carriers of the sporulated oocysts the two recognized species of turkey coccidia. Of course, turkeys may become mechanical carriers of any one of the seven species of chicken coccidia. Similarly, wild birds have their own species of coccidia, but they, too, may become a mechanical means of spreading other coccidia, by carrying on their feet and feathers the sporulated oocysts from one chicken or turkey yard to another.

Establishing Immunity

When chickens or turkeys consume but a small number of sporulated oocysts, nothing serious happens. In fact, relatively small numbers from 1,000 to 4,000, actually establish a kind of immunity or resistance against later infections involving many thousands. The explanation of why and how this phenomenon occurs is just as obscure to the scientist as is a sat-

Veterinary Magazine Corp., 7632 S. Crandon Ave., Chicago, Ill.
(Veterinary Medicine, May, 1941)

isfactory explanation of the possible changes which occur within the animal body following recovery from an invasion of germs or viruses.

The existence of this type of immunity goes far in establishing for the practitioner, as well as for the investigator, the reason why, even in an acute outbreak, the mortality often represents but a small fraction of the whole brood or flock.

When these tiny parasite eggs are swallowed in large numbers, they hatch out in the digestive tract and burrow into the lining of the intestine. Once the intestinal tract has been invaded, the parasite is produced in tremendous numbers, with the result that small blood vessels of the intestinal wall are ruptured.

Cecal Coccidiosis

The most common species of coccidia seen on the poultry farm is often called cecal coccidiosis, in which the parasite attacks, primarily, the lining of the ceca or blind pouches. If large numbers have been eaten within a short period of time, fatal hemorrhage usually occurs five days later. The droppings contain masses of uncoagulated blood a few hours prior to death, but in the beginning this symptom often escapes the owner's notice.

In such a case, the history of the attack usually discloses that the birds are from four to eight weeks of age, and that about a week prior to the onset they have been allowed to run out of doors on soil used the year before. Experimentally infected chicks show no evidence of the disease for 96 hours following inoculation. During this incubation period, however, many changes are taking place within the bird. Each oocyst is protected by a double-walled covering, which yields to the action of digestive juices, plus the activity of the four single-walled sporocysts within.

Upon being released, which takes but a few minutes to an hour, each of the eight sporozoites (two in each sporocyst) progresses the length of the small intestine and gains entrance to the ceca.

In the majority of field cases, the onset of the disease is slower. The poultryman's first warning may be that 10 per cent or more of the chicks become pale, appear sleepy, have rough feathers, and lose interest in eating. Bloody droppings may or may not be noted. This disease may have been present in the flock from five to ten days without an alarming mortality, simply because none of the chicks consumed enough coccidia to cause fatal hemorrhage, but only enough to make them sick and produce inappetence.

Post Mortem Findings

At post mortem if the chick has died from fatal hemorrhage, every tissue appears normal, except that the ceca contain unclotted blood, or a semi-solid bloody mass.

In a sub-fatal dosage, it has been found experimentally that these cecal plugs are formed on the eighth or ninth day following inoculation. Often a cecal plug is expelled on the ninth or tenth day. If, however, its size will not permit passage, the plug remains in the cecum and is disclosed when a post mortem examination is made, perhaps several weeks following the attack.

Pullet Coccidiosis

Coccidiosis may appear in growing pullets, independent of a previous attack while in the brooder house. After experiencing the loss of several pullets, one may find on post mortem that the loop of the intestine contains large masses of blood. In these cases, the intestine appears ballooned, the walls very thin, and close examination, without opening the intestine, may reveal small white spots in the intestinal wall.

Originally called chronic coccidiosis, this intestinal form, produced by the consumption of large numbers of oocysts, may be just as acute as the cecal.

Some species of coccidia attack other parts of the small intestine, leaving as the only outward evidence of the disease an unthrifty pullet. Certain areas of the intestine may be thickened, and small hemorrhagic areas noted, but a laboratory examination is required for positive identification.

There is no cross-immunity between species of chicken coccidia. Recovery from an attack of E. tenella in no way confers resistance upon the same birds against E. necatrix, or other species.

Diet and Sanitation Important

Coccidiosis in all its forms is best controlled by brooding chicks and rearing pullets in a clean environment, and encouraging feed consumption during an attack. The sanitation program includes a clean, dry litter and floor. If the brooder house is movable, the chicks should be brooded on ground where no poultry has been raised in the two preceding years. Otherwise, the ground may contain live, though dormant, forms of the parasite. If the house is not movable, alternate yards should be provided from year to year.

Likewise, pullets should run on clean ranges, not using the same range year after year without rotation. Nor should poultry droppings be used as a fertilizer where chickens are to be raised.

In whatever form the disease appears, regardless of age, some form of milk should be used at once. The milk in itself is not a specific, and the early belief that coccidiosis could be avoided by feeding large quantities of milk has been exploded long since. Used judiciously, however, milk serves as an appetizer, and, since lactose appeals to their taste, is the finest type of nursing food to help the chicks weather an attack.

Starvation is a Great Danger

With the average attack of coccidiosis, more birds starve to death than bleed to death. Since the disease runs its normal course in a few days, if the birds can be kept eating the percentage of recovery will be high in all cases except in those which consumed lethal numbers of coccidia. Since dried cheese whey is richer in milk sugars than any other form of milk, this product has proved to be a most valuable one in controlling this disease.

Dried skim milk, dried buttermilk, condensed buttermilk, and condensed whey have been used by poultrymen with good results. It is important that high protein milk mashes not be used excessively. The high level of protein stimulates growth artificially, and seriously damages the kidneys.

The dried cheese whey mash should be used for one day when the disease is first noted; the next day the brooder house should be cleaned thoroughly and the litter renewed. The whey mash may be used on alternate days for decreasing lengths of time, until the birds are through the attack. After the first cleaning, it is usually necessary to renew the litter only if it is damp.

Coccidiosis Tomorrow

Recent experimentation has shown that several forms of sulphur, such as flowers of sulphur, sulphur flour, and colloidal sulphur, are quite specific in preventing cecal coccidiosis. Unfortunately, a form of rickets may accompany the use of too much sulphur. Although there is evidence that some of these products may prove to be of considerable assistance, more research and a large number of trials under practical conditions are needed before a broad recommendation can be made for the use of sulphur in preventing coccidiosis.

The successful poultryman has learned to live with coccidiosis. While this disease may always be with us, it can be predicted that losses will decrease each year, as it becomes more widely understood that light attacks confer resistance against later fatal attacks; that the disease runs a limited course, regardless of the methods used to treat an outbreak; and that losses depend upon two factors — the number of coccidia ingested, and the total amount of proper food eaten during the attack.

CLARENCE A. CHAPMAN, Beattie, Kans., reports that a chick, hatched along with a squab by a pigeon, was too much for the older bird, relate the newspapers. The pigeon foraged food for several days, but was unable to fill the demands of the chick, so kicked the infant from the nest to make its own way.

What Shall We Do with Broody Hens?

By **HERBERT A. HOGSETT**

Pomona, California

Condensed from Hogsett's Chicken Chatter

THERE are times when broody hens would try the patience of a Job. Experiences with some hens have so vexed us that we would have gladly rung their necks and felt that we had performed a Boy Scout deed.

We never will forget the Rhode Island Red hen we tried to break up when we were working at the old Pomona Egg Laying Contest. This pullet had laid 154 eggs in her first six months and was leading the contest when she suddenly had the urge to raise a family. This was not an ordinary urge, that is, it was not to be squelched easily, a fact that we learned after four or five weeks of trying. The final trial that convinced her of our intentions was to confine her to a wash tub with about three inches of cold water in it.

Those of us with Leghorns should not be disturbed with the amount of broodiness found in the average flock. We have heard of Austrawhite flocks that have had as many as 25 per cent cooped up as broody at one time. Fortunately, the pure-bred high production strains of both light and heavy breeds have had most of their broodiness bred out of them.

How to Handle Them

In answer to the question as to what should be done with the broody hens, we say: First, break them up as soon as you can after they stay on the nest. Second, don't be too hasty about sending these hens to market. For years we have been told (and we probably have done some of the telling) that these birds should be sent to market when they have gone broody the second time.

In order to check the wisdom of this culling practice, we compiled a record of the broody hens out of our 1939 flock of pullets. We had 105 pullets go broody from one to ten times during the first laying year. This was out of 1,896 pullets started. The surprising thing to us was that whereas the mortality of the 1,791 non-broody pullets was 25.8 per cent, the mortality of the 105 broody pullets was just 12.4 per cent! Also, the broody pullets laid almost a dozen MORE eggs per hen for the year, based on the number at the beginning of the year.

Let's examine these 105 broody

Hogsett Poultry Ranch, Pomona, Calif.
(Hogsett's Chicken Chatter, April, 1941)

hens a little more closely. There were 10 of these that laid 250 eggs or more, 49 laid from 200 to 250, 30 laid from 150 to 200, and 16 laid below 150. Ten of the 13 total mortality were in this low group. Therefore, we see that 89 of these 105 broody birds paid their way and returned a profit.

Now let's see what we would have sent to market if we had culled all hens going broody two times or more. We would have sold for meat 33 hens laying 250 eggs or more, 20 laying 200 to 250, 21 laying 150 to 200 and only 7 laying below 150. There were 44 hens in this group that more than paid their way. If we had sold all birds going broody 3 times or more, we still would have sacrificed 32 out of 37 birds that laid over 150 eggs. Even the one hen that brooded 10 times laid an even 200 eggs.

Our advice from this very elementary bit of research is to go ahead and sell the broody birds if it satisfies your urge to do something about this very annoying natural habit of chickens. But while you are doing this, also realize that you are selling many birds that will return you a good profit and, as a group, may be among your lower mortality birds.

Effect of Fish Meal on the Flavor of Eggs

An onslaught of so-called "fishy eggs" immediately brings up the question of fish meal in the ration. Several years ago this college reported that increasing the fish meal content of a laying mash from 4 per cent to 15 per cent failed to produce a fishy flavor in the eggs.

Western Washington Experiment Station has reported a test involving nine lots of 16 Leghorn pullets, and conducted over seven 28-day periods. Triplicate lots of pullets were fed each of three rations. A basal mash was prepared which contained 15.1 per cent protein from cereal sources. The other two rations tested against this basal ration contained 4.3 per cent and 28 per cent of salmon fish meal.

No difference in flavor or odor could be detected in eggs fed different levels of this salmon fish meal and the control ration. Since neither fresh eggs, nor eggs stored at 34 degrees Fahrenheit, nor eggs kept in a humidor, gave a single instance of off-flavor, it appears that the production of "fishy" eggs cannot be blamed on the fish meal in the rations, even when fed as high as 28 per cent of the mash.

—John H. Vondell, Featheredfax, June, 1941.

POULTRY RESEARCH

Sex Ratio in Chickens

For eight generations, representing a total of 23,273 Rhode Island Red chicks bred for high fecundity at the Massachusetts Agricultural Experiment Station, the sex ratio was found to be 50.85 per cent males to 49.15 per cent females. Sex was recorded at eight weeks of age. This ratio is not in agreement with work carried on previously, and F. A. Hays, who made the investigations at the Massachusetts station, suggests that breeding for high fecundity may have influenced the sex ratio, according to the report in the American Naturalist (Vol. 75).

Inheritance of Albumen Quality

Firm-albumen percentage was again shown to be a hereditary factor in tests carried on at the California Agricultural Experiment Station by F. W. Lorenz and Lewis W. Taylor, according to a report in the Journal of Agricultural Research (Vol. 61, No. 4).

Two lines of birds, one selected for a high percentage of firm albumen and another for low percentage of firm albumen, showed an average difference of more than 11 per cent in the amount of firm albumen in eggs laid in tests over a five-year period. Crossing the two lines resulted in intermediate progeny. Firm-albumen characteristics of the dam seemed to have more influence on the firm-albumen percentage of eggs from the offspring than did the heredity of the sire's line.

Inheritance of Slow Feathering

Slow feathering in White Leghorns seems to be a simple recessive character, Cecil F. McClary and Gordon E. Bearse reveal in the 1939-40 report of the Western Washington Experiment Station. It was observed that slow-feathering chicks could be detected by close observation immediately after hatching. The condition becomes more apparent as chicks become older, and wing and tail feathers do not grow out completely until the tenth or twelfth week, after which time it is impossible to detect any difference in feathering between slow and fast-feathering birds.

Disease Resistance

Birds from lines resistant to disease showed less total mortality, and fewer deaths from leucosis, in tests conducted by Gordon E. Bearse, Cecil F. McClary, and C. M. Hamilton at the Western Washington Experiment Station, relates that station's 1939-40 report.

A line selected for disease resistance, a line selected for susceptibility to disease, and control groups were maintained under similar conditions. It was found that the line which had previously exhibited high livability showed a significantly smaller percentage of mortality, under both 224 and 560-day tests.

Variation in Liver Lesions

As an aid in diagnosing liver infections in turkeys, Ena A. Allen, U.S.D.A. Beltsville Research Center investigator, found that three types of lesions could be differentiated between in varying cases of enterohepatitis, according to the report in American Journal of Veterinary Research (Vol. 2, No. 3).

Liver lesions resulting from pure infections of Trichomonas gallinarum are irregular in outline, granular in appearance, and are level with or slightly elevated above the surface of the liver.

Lesions produced by pure infections of Histomanas meleagridis are more or less circular, have narrow, distinct borders enclosing web-like formations of necrotic material, and are slightly depressed below the surface of the liver.

Lesions in livers of turkeys having natural mixed infections of T. gallinarum and H. meleagridis are relatively large, circular, markedly depressed areas, with slightly raised granular borders and, sometimes, with granular centers.

Swine Erysipelas in Turkeys

Segregation of sick birds and slaughter of well birds seemed to be the most economical and satisfactory method of handling outbreaks of swine erysipelas in turkeys, in studies carried on at Oregon Agricultural Experiment Station by A. S. Rosenwald and E. M. Dickinson, says their report in the American Journal of Veterinary Research (Vol. 2, No. 3).

Anti-swine-erysipelas serum was found to have no practical value, either in treating or preventing outbreaks. Outbreaks were found to occur principally during the months of October, November, and December. Over 80 per cent of the birds affected were males, exhibiting a turgid, reddish-purple caruncle as a symptom of the disease. Upon post mortem examination, it was found that infected birds had suffered intermuscular hemorrhages, but the latter symptoms are not confined exclusively to this infection, and positive diagnosis is dependent upon isolation and identification of the causative organism.

Leucosis Transmissibility

Eggs laid by 19 hens with a family history of leucosis were incubated, their embryos removed on the tenth day of incubation, and ground with physiological saline solution. This solution was injected into 150 chicks purchased from a breeding farm with a history of freedom from leucosis. Of the inoculated chicks, 16 (66 per cent) of the 24 that had died at the time the report was made showed some form of leucosis, with about half of the leucosis deaths being due to the nerve form. Of the control group, none of the deaths have been due to the nerve form of leucosis, but six out of 50 chicks have died, all from leucosis, reports C. M. Hamilton in the Western Washington Experiment Station report for 1939-40.

Dried Yeast and Perosis

Dried yeast reduces perosis in chicks in proportion to the quantity of yeast fed, according to a report in Pennsylvania Agricultural Experiment Station Bulletin 399. A diet containing all known vitamins and minerals required by chicks, including 100 parts per million of manganese, failed to prevent perosis, when yeast was not included.

Floor Type and Perosis

Sunlight has a much greater effect on the amount of slipped tendon (perosis) in chicks than the type of floor on which they are raised, report J. G. Halpin, W. W. Cravens, and C. E. Holmes in "What's New in Farm Science," Wisconsin Experiment Station Bulletin 451. When kept on shavings, but out of the sun, almost as many chicks came down with perosis as did battery-raised chicks, also out of the sun. Chicks on sunporches, however, had little trouble with the disease.

Chicks with access to sunlight needed but 50 parts per million of manganese in their ration to prevent slipped tendon, but chicks kept in the shade were afflicted even when the feed contained 150 parts per million of manganese.

Cannibalism Control

Increasing the bulk by the use of all-mash rations, high levels of oat-hull fiber, and larger amounts of beet pulp was effective in reducing feather picking only when the practice resulted in the birds going out of production and molting, report Gordon F. Bearse, Cecil F. McClary, and V. L. Miller of the Western Washington Experiment Station in that station's report for 1939-40. Cannibalism was high in all pens of birds under test, and apparently was not influenced by either the ration or the form in which the ration was fed (either as pellets or all-mash).

In further tests by the same workers, it was found that keeping birds busy helped to reduce cannibalism. In the latter test, cannibalism did decrease as the fiber level was increased, but birds fed pelleted rations showed a great amount of cannibalism, in spite of the high fiber content of the ration. The same ration produced more severe cannibalism when pelleted, and the investigators conclude:

"Pelleting, particularly of high fiber rations, greatly reduces the time required to consume sufficient feed for growth or production, and, consequently, results in more idle time. It is during these idle periods that feather picking occurs."

Salt Water for Cannibalism

An emergency treatment for cannibalism is the "salt water cure," report J. G. Halpin and C. E. Holmes in "What's New in Farm Science," Wisconsin Experiment Station Bulletin 451. The addition of one tablespoonful of salt to each gallon of water for one forenoon, then repeating the treatment for one-half day in three days, was found to control feather picking. Rations should contain at least ½ of 1 per cent of salt, and may require more, to prevent cannibalism. Addition of salt to the mash is more satisfactory over a period of time than the salt water treatment.

Influence of Various Grains on Chick Growth

A diet containing oats as the only grain produced more rapid gains than did diets containing corn, wheat, or barley as single grains, in tests by H. L. Wilcke and John C. Hammond, Bureau of Animal Industry investigators; reported in the Journal of Agricultural Research (Vol. 61, No. 5).

The diet containing corn as the sole grain had larger quantities of vitamin A and the G complex, but oats, barley, and wheat all gave better growth. Chicks on the diet containing corn as the sole grain had a very poor quality of feathering.

The addition of 20 per cent of ground oat hulls, ground hulled oats, or ground whole oats to corn or wheat diets improved the rate of growth and also improved the quality of feathering in the corn-fed chicks. Oat hulls proved to be more effective than hulled oats or whole oats in supplementing wheat, but there seems to be no difference in the value of these three products as supplements for corn.

Statistical analyses showed that differences in rate of growth were due directly to differences in feed intake, and not to differences in efficiency of the diets.

Hens Need Vitamin K

If chicks are to have blood with normal clotting power, hens must be fed rations containing vitamin K, conclude W. W. Cravens, J. G. Halpin, S. B. Randle, and C. A. Elvehjem in "What's New in Farm Science," Wisconsin Experiment Station Bulletin 451. Best natural sources of the vitamin are green grass, alfalfa leaf meal, and dried cereal grass. Dried cereal grass is about twice as rich in vitamin K as alfalfa leaf meal; 1 per cent of the former or 2 per cent of the latter being the minimum requirement in rations for breeding hens.

Chicks whose dams were fed insufficient amounts of vitamin K will have slow clotting blood, and are liable to bleed to death from minor wounds.

Grains for Meat Birds Compared

There were no significant differences between the dressing and cooking percentages of fryers and roasters receiving either wheat, barley, or yellow corn as the principal constituent of their ration in tests carried on by W. E. Poley, Amanda Rosenquist, and A. L. Moxon at the South Dakota Agricultural Experiment Station, says a report in the Journal of Agricultural Research (Vol. 61, No. 3).

Barred Plymouth Rock cockerels, raised under similar conditions, except for the principal grain in their feed, were killed, dressed, cooked, and tasted by a committee of nine judges proven competent by extensive tests on their ability to differentiate between the four primary tastes. The judges could detect no appreciable difference in aroma, flavor, juiciness, or tenderness of either light or dark meat from any of the birds.

Molasses in Poultry Rations

Feeding-cane molasses may be used to replace part of the corn in poultry rations, reports R. V. Boucher in Pennsylvania Agricultural Experiment Station Bulletin 399. When yellow corn was replaced by 2, 4, and 6 per cent of feeding-cane molasses in a standard ration, growth and gain during the growing period were highest and mortality lowest in a group of pullets receiving the highest percentage of molasses. Feed efficiency was highest in the group receiving no molasses. During the first seven months of production, body weight, feed intake, and egg production tended to increase with the increase in amount of molasses fed.

Milkless Mash and Hatchability

Mashes without milk may be satisfactory as laying mixtures, but do not result in as good hatchability as milk-containing mashes, report J. G. Halpin, C. E. Holmes, and W. W. Cravens in "What's New in Farm Science," Wisconsin Experiment Station Bulletin 451.

Evidence was also found that hatchability is apt to be poor in the winter and early spring if soybean oil meal is the only protein supplement used in the breeding mash.

Small Chickens No Longer Popular

There have been decided changes in the public demand for chicken.

A few years ago small broilers (under 2½ pounds) were considered a great delicacy, and were bringing premium prices. Now they're as out of style as a woman's 5-year-old hat. Today people want chickens that weigh at least 3 pounds. We may say it's only a fad, but it has reached the proportions of a marketing trend. And plenty of people have gone broke trying to "buck" a trend.

We ought to realize by this time that there is no longer any profit for the producer in these small chickens. The time may come when they'll be popular again, but right now practically everybody wants them bigger.

For one thing, more and more chicken is being sold by the piece, and in order to get a leg or a wing or a breast that has enough meat on it to look like anything, you've got to have a bird that weighs at least 3 pounds.

A lot of people thought the idea of chicken-by-the-piece was just a novelty that would wear off. But sales are booming!

Instead of waiting a year and then waking up to find that these small chickens aren't worth anything, let's recognize it right now, and feed these birds until they weigh 3 pounds—or more.

—Frank Priebe's Weekly Letter for June 12, 1941.

We Need More Poultry Shows

Dressed poultry shows, such as are now being held in different parts of the country, are doing much to stimulate interest in the production and marketing of fine quality birds and to develop a greater consumer appreciation of quality of the turkey the housewife buys.

Exhibitors and other growers benefit by gaining increased knowledge of what is required in proper selection of breeding birds, enabling them to produce and market a better product. When that is done, everyone else on down to the consumer benefits.

Dr. George Jaap, Oklahoma A. & M. College, in discussing the subject of improving the meat quality of poultry, has said that it would be helpful to the industry to have shows of dressed chickens comparable to the dressed turkey shows that the turkey people have started. So here is something else in which poultry packers and state colleges can cooperate.

—G. D. McClaskey, U. S. Egg and Poultry Magazine.

Feather Picking and Cannibalism

By **ROY E. ROBERTS**
Purdue University

Condensed from 1941 Indiana Poultry Blue Book

MODERN methods of managing poultry, in which relatively large number of birds are kept together in a limited space, are largely responsible for the development of cannibalism and feather picking. In the "good old days," a few chickens had the run of the whole farm and a plentiful supply of feed was not kept before them at all times. Consequently, they were too busy hunting for bugs and worms and waste grains to have much leisure time to get into mischief. Also, when at roost in the trees, or in the tool shed, they were fairly well isolated.

Under modern conditions, with plenty of feed and water available in a small area, birds can eat their fill in a short time. Then there is plenty of time left for their curiosity to start working. With a large number of birds in one flock, it is not surprising that curious pecks at pen mates start feather picking, which in some cases may result in the drawing of blood. The blood attracts other birds, and when attacked by several of her pen mates, since she has no means of escape, a bird may be killed in a short time.

It is apparently a common belief that prolapse or eversion of the oviduct is responsible for a large part of the loss from "pickouts," deaths resulting from vent picking. In most cases, there is no way to determine whether prolapse was the cause, since the birds are dead when discovered.

Observations reported by the Ohio Agricultural Experiment Station showed that, in some cases, prolapse in one bird was responsible for several pickouts in a flock. After the birds had killed the one with prolapse, they attacked birds with normal vents. Feather picking may develop into vent picking, even though no cases of prolapse occur.

At the Western Washington Agricultural Experiment Station, observations were made upon trapnested pullets. Each bird was carefully observed when removed from the trapnest for evidence of prolapse. While no prolapse was observed during the laying year, there was still considerable mortality from cannibalism.

A report from the Federal Department of Agriculture, Ottawa, Canada, indicates that birds in laying condition are not as likely to be the victims of cannibalism as are those which are not in laying condition. In a flock of 357 trapnested birds, 92 were victims of cannibalism. Of this number, no bird was reported killed on the day she laid her last egg, and only 10 birds died within a week after their last egg was recorded. No bird, therefore, was killed immediately following prolapse. It seems, therefore, that while prolapse may be responsible for outbreaks of cannibalism, serious losses may occur in flocks where there is no prolapse.

Breed Differences

White Leghorns are apparently more likely to be victims of cannibalism than the heavier breeds. One reason is that blood shows up more plainly in the quills of the new feathers on white birds and attracts other birds. Also, any blood resulting from an injury would be more easily seen on white birds. Another explanation which has been offered, assuming that the victims of cannibalism are out of production, is that production pauses are periods of recuperation, which are necessary for the bird to build up the body weight lost during a period of production. Leghorns with their smaller body weights are believed to be more severely affected with the result that they mope about the pen, and are easier victims of their pen mates than are heavier birds.

This does not mean, however, that picking and cannibalism are not problems in other breeds. During recent years there has been an increasing number of instances in which a large percentage of the birds in flocks of Barred Plymouth Rocks have been picked until they were almost naked. At least it is believed that the condition is the result of picking, since no other cause has been discovered.

Heredity

It is not certain how important a part inheritance plays so far as the tendency to picking and cannibalism is concerned. While some observations indicate that stock from certain strains is more likely to be cannibalistic than others, more definite information is needed on this point.

Rations

Although cannibalism is often believed to be caused by a deficiency in the ration, there is little evidence for this belief. For one thing, where adjoining pens of birds are fed the same ration, there may be serious outbreaks of picking or cannibalism in some pens and no trouble at all in other pens. Also, since trouble occurs on different types of rations and systems of feeding, it seems doubtful that the ration is responsible. Many rations, deficient in various nutritional factors, have been fed at this Station without causing cannibalism. On the other hand, cannibalism has developed at times among birds which were receiving

rations believed to be complete. In some trials, in which rations extremely low in protein were fed, several chicks were pickout victims. It seems very doubtful that rations which contain sufficient protein to produce satisfactory growth are responsible for outbreaks of cannibalism.

Prevention and Control

Many different measures have been proposed for the prevention and control of feather picking and cannibalism. It is often necessary to try several of these treatments before the trouble is brought under control.

Since picking is more likely to develop among birds which are confined, especially if they are crowded, where at all possible birds should be given access to range. This will help to keep the birds busy and keep them out of mischief. Where birds must be confined, they should not be crowded. For mature birds, allow about 3½ square feet of floor space per bird for Leghorns and 4 square feet for the heavier breeds. For spring brooding, where the chicks can be let outside by the time they are five or six weeks old, 250 to 300 chicks is a satisfactory number to start in a 10 by 12-foot house. For winter brooding, only about 200 to 225 chicks should be started in this sized house if they are to be kept there until 12 weeks of age. If they are to be kept for a longer period the number should be reduced somewhat.

In the case of pullets on range, they must be let out early in the morning. If they are kept confined after daylight, they may start picking.

Anything which will keep the birds busy should help to prevent picking. For this purpose, small amounts of grain may be fed in the litter several times a day, heads of cabbage or beets may be hung up for the birds to pick at, and good quality clover, alfalfa, lespedeza, or soybean hay may be placed in racks or scattered on the floor.

Provide Plenty of Nests

Sufficient nests should be provided so that it will not be necessary for birds to lay on the floor where other birds will have a chance to pick them as soon as they have laid.

Feeding Oats

During recent years, the feeding of oats, either ground oats added to the mash or a hopper of whole oats kept before the birds at all times, has been recommended as a means of preventing feather picking and cannibalism. While oats have apparently helped prevent these vices in some cases, they have not been effective in all instances.

In four experiments conducted in four different years at the Western Washington Agricultural Experiment Station, ground oats, when fed as the sole cereal (55 to 85 per cent of the ration) in rations for chicks, growing pullets, and laying pullets, reduced cannibalism below that on rations which contained ground corn as the only grain. Additional trials indicated that the oat hull fiber contained the cannibalism preventing factor. The Washington workers point out, however, that it should not be concluded that oats as the sole grain would make an ideal ration. They mention that the oats caused considerable difficulty with gizzard impaction in young chicks, and that there seemed to be a greater tendency for pendulous crops to develop on the oats rations. Also, more feed was required per unit of gain on the oats rations.

In experiments conducted at University College, Dublin, Eire, serious feather picking developed on a ration containing 35 per cent of finely ground oats, but did not occur on a ration containing 35 per cent of finely ground wheat bran. Wheat bran in flake form proved equally effective.

In a number of inquiries received by the Purdue Poultry Department concerning cannibalism, the writers have mentioned that their birds were picking one another even though oats were being fed free choice. Also, it is not uncommon to find poultrymen who are keeping oats before their birds and likewise are using beak guards on them. It seems, therefore, that while the feeding of oats may help in some cases, they cannot be relied upon as a certain preventive of cannibalism.

Addition of Salt to Ration

A recent recommendation for the prevention of cannibalism is to give the birds more salt. In some cases salt has been added to the drinking water for a half day. It is reported that this gave immediate relief, but that the relief was only temporary and the vice started again in a day or two. Another method is to use from 2 to 2½ per cent of salt in the ration. One report states that this method of feeding Leghorn cockerels from 6 to 10 weeks of age in batteries has caused no apparent ill effects and no cannibalism has occurred.

The Federal Fish and Wildlife Service reports that in preliminary studies, outbreaks of toepecking occurring among mature quail on diets containing no salt to 0.5 per cent salt, were stopped in 24 hours by increasing the salt content to 2 or 3 per cent. Levels of 4 to 6 per cent of salt apparently had no deleterious effects on mature quail. This agrees with experiments conducted at the Illinois Agricultural Experiment Station, in which chickens were raised from 9 to 21 weeks of age on rations containing as high as 8 per cent of salt with no apparent toxic effects.

One objection to the use of large amounts of salt is that the ration will be too laxative. In trials at this station with chicks, rations containing 2 per cent of salt were very laxative. For this reason, rations containing not over 0.5 to 1.0 per cent of salt are preferred.

Red Light

For the prevention of cannibalism among chicks in batteries or in brooder houses the Washington Agricultural Experiment Station has found the use of ruby colored light very effective. For this purpose, the windows may be darkened and light provided by means of natural colored ruby bulbs, or the windows may be painted with red lacquer or paint to produce a ruby light. The object is to have a light which will make it impossible for the chicks to distinguish blood on the feathers or in the shaft at the base of the new feathers.

A common recommendation is that the room in which chicks are kept in batteries be darkened and that lights be arranged to shine upon the feeders and waterers in such a way that as little light as possible will reach the interior of the decks. These precautions are apparently more important where white chicks are raised. At least, Barred Plymouth Rock chicks have been raised in batteries in well lighted rooms at this station with practically no trouble from cannibalism.

Fortunately, at this station we have not experienced much trouble with cannibalism. Probably several practices have helped to prevent more serious outbreaks. In our trials with broiler chicks, which are raised in confinement to 12 or 14 weeks of age, Barred Plymouth Rock chicks have been used. There might have been more trouble had white chicks been used.

Chicks raised for the production of laying pullets have not been crowded in the brooder houses and have usually been let outside by the time they were two to four weeks old. At 8 to 10 weeks, the cockerels have been removed and the pullets transferred to range, where they remained until ready to go to the laying house. Then in the trials with laying pullets, only 50 to 100 pullets have been kept in one pen. Also, in most cases the laying birds have been trapnested.

Painting Injured Birds

In those cases where cannibalism has started, it has been possible in most cases to stop the trouble by painting the injured parts of the picked birds with tar or with one of the red anti-pick salves which are on the market. While it has at times been necessary to paint several birds before the trouble was stopped, this treatment has usually proved effective. Scarlet balsam, which is a heavy red oily material, heals the injured parts and is distasteful to chickens. It may be purchased in 4 ounce bottles through any biological supply house outlet.

Tipping Beaks

In a few cases, with White Leghorn pullets, when injured birds were discovered, we have in addition to painting them also cut the tip end of the beak off of the birds which were doing the picking. These ringleaders were identified by watching to see which birds were doing the picking and also by noting which birds had blood on their beaks. Frequent trips should be made to the pen to detect any "pickers" which escaped notice at first. A catching hook should be kept handy so that at any time a bird can easily be caught and the beak tip removed. This method will often break up the vice before many birds have developed the habit and thus save the trouble of treating the entire flock.

Mechanical devices which fasten onto the beak of the bird are available. These permit birds to eat and drink but prevent them from pecking straight ahead. One type is hinged and swings out of place when the bird lowers its head to eat or drink but falls down over the tip of the beak when the bird raises its head. Another type acts as a blinder and prevents the bird from seeing straight ahead.

Watch Birds

If picking and cannibalism can be prevented during the brooding and growing periods there is less likelihood that trouble will occur after the pullets are housed. In all cases, birds should be observed carefully so that, should they start picking, steps can be taken to stop it before it develops into a serious outbreak.

Cellar Stored Hatching Eggs

My pet peeve is cellar stored hatching eggs. We have incubated thousands of them, and with no exception, they all hatched badly. Still each year we have trouble with them!

We give our egg producers written instructions; we talk to them; we show them their tray cards where their hatchability record leaped from 40 to 80 per cent when they moved their eggs from the cold cellar. But, in spite of all this, next year they do it again.

"But why?" I asked one of our flock owners who had erred in this respect for three consecutive seasons. "Why do you always store your hatching eggs in the cellar? They always hatch badly when you do."

Triumphantly, she produced a clipping. It read:

"A basement or cellar is a good

place to store hatching eggs, because such rooms usually have a high humidity and low temperature."

High humidity and low temperature are right. The cellar walls of the other half are wet. One steps over pools of water. There are no windows or means of ventilation and the dank, stifling odor of mildew and decaying vegetables is overpowering. One wipes the spider webs from one's hair and wonders how even a spider could live there.

Certainly, a hatcheryman's problem during December and the first four months of the year is not overheated hatching eggs. In all our years of keeping accurate records on millions of hatching eggs, we have never found but one case where the eggs were held in too high a temperature, while our experiences with bad hatchability from eggs held in unheated rooms, icy cellars, and tiny closets are legionary.

I'll agree that a clean, heated, well-ventilated basement is the best place in the world to store hatching eggs. But the trouble is the majority of the farmers don't have any basements. And they need to know what to do in their limited environment. They want to know how to do the best they can with what they've got.

—Mrs. R. V. Jared, Hatchery Tribune, May, 1941.

Consumers Want Graded Eggs

Too many producers fail to realize the importance of placing quality eggs on the consumer's table in the most efficient manner; they have been interested in only the egg buyer and his paying price. They have failed to realize the importance of selling on a quality basis to reliable buyers who supply progressive retailers who operate on a small margin with rapid turnover.

The intelligent producer is thoroughly acquainted with the channels of distribution of his product. He sells to reliable firms or cooperatives who practice good business methods and obey state egg laws. He is allergic to anyone in this cycle who says, "An egg is an egg."

Producers should do all that is possible to reduce economic burdens being placed on a case of eggs such as the necessity for recandling two or three times during the marketing process. One candling at the time of cartoning is all the expense eggs can bear. If they are rehandled unnecessarily, the producer and consumer pay the cost with no additional benefit.

—D. K. Broadhead, Nulaid News.

Diary of a Poultryman

By **PERCY S. WHITE**
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

July 1 – Catching up broilers by eye and heft is rather unsatisfactory. On the other hand, it might be that one can't do a good job if one is half asleep and doesn't know it. Anyway, I cast out a bunch of marketable birds thinking they were too light. Then I came short several coops of my expected quota for today's sale. And, the irony of fate, it was a short sale, and 1½-pound stock was in brisk demand. I could have cleaned up on practically the whole works at a good price **IF** . . . Whoever said "What fools we mortals be," hit the nail on the head. But the moral of today's experience is that I will make more test weights and try to be awake next time.

July 3 – All mash hoppers and water fountains have been moved to new ground. It hasn't rained for a couple of days, and the soil is drying rapidly. I try to keep the young stock scattered as much as possible, but due to the wet weather, it was well nigh impossible to scatter the feeders to any extent.

July 6–Fly-out doors for colony houses are sleep savers. Every night when I lock up the chicks I open the fly-out doors. At the first break of day, the chicks start flying the coop. They start in with one or two of the more adventurous birds, and then the rest come out in hordes. The bended bow rafter houses are equipped with regular doors about 18 inches from the ground. In the other houses, I merely crack a window about 8 inches. The result is all the same; the chicks get out while the Old Man sleeps.

July 9–A wild shriek in the night, and the Old Man bounces out of bed, flattens out with one ear to the ground and a shotgun, cocked, primed and loaded with buckshot by his side. Death is stalking the range. Insects chirp; a night bird calls; Janie's Swiss cow bell tinkles out in the pasture; a dead twig falls; the Old Man's hair stands on end.

Night noises, but all seem realistic and carry a sinister meaning.

A chick flutters against the side of the colony house and a flustrade of shots disturbs the calm. The chick had fallen out of the fly-out door and was returning home. The Old Man rose slowly, cold and stiff, and staggered back to bed, too.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, June-July, 1941)

July 10–Tomorrow is another one of those big days on the ranch that comes about three times a year. We are prepared to sell 20 coops of broilers; 500 of them. This reduction ought to cut a wide swath in the chicken population and, I hope, in the feed bill. Next week I want to sell another 500, and from then on, it will only be a coop or so at a time.

July 12–A vacation for the Old Man, the first vacation in 15 years. I am going on a poultry tour; 30 Ohioans in a chartered bus. The schedule has been arranged by the Extension Service. Interesting points in Pennsylvania, New Jersey, New York, and Maryland will be touched. We will be gone a week, leaving Monday.

July 15–Lewistown, Pa. We have been doing what is commonly known as traveling. At 6 a.m. three cars left our auction building for Columbiana, Ohio, where we toured the plant of the North East Ohio Poultry Association. Then we drove across country to visit with Mark Weser, manager of the Butler Egg Auction, Butler, Pa. At State College, Prof. "Pete" Knandel and practically the entire poultry staff were on hand to give us a royal welcome.

July 16–Hotel Gov. Clinton, New York, N. Y. I have heard so much about this man's town that, just as soon as I get this written, I am going out to see some of it. They let me act as pilot this morning, sitting next to the bus driver from Lewistown to Fredericksburg, Pa. Coble Grimes' College Hill poultry ranch is a real eye-opener. Forty thousand birds a week are dressed under federal inspection. They are sold in 35 retail stores from New York to Washington, D. C. If the customer wants a pound of necks or 5 pounds of wings or drumsticks, he gets them without buying a whole chicken.

We also stopped at Bethlehem to visit the Bethlehem Egg Auction; the Cane Poultry Farm, Rosemont, N. J.; and the Flemington Egg Auction, Flemington, N. J.

July 19 – Washington, D. C. We have been traveling through the eastern shore broiler district all day, broilers by the thousands and the tens of thousands. I am getting so confused I don't know if I am seeing or hearing right or not. Senator Wilmer Steele's farm near Ocean View, Del., has a capacity of 90,000 broilers at one spot, at least that is what they said they had. I was just too confused to even try to count them.

July 20 – Cumberland, Md. We went down to see "Doc" Jull and his gang at College Park, Md., this morning. Then we drove over to the U. S. Research Farms at Beltsville. Paul Zumbro, acting chief of the department, met us at the hotel in Washington and acted as guide. He invited me to ride in his car all the way to Beltsville and back again.

July 22 – Home, Sweet Home, Ohio. Yes, it's good to be home. Wayne County and home never looked any better than on yesterday afternoon. It will take a few days to get rested and then the same old nose will be on the same old grindstone, but I hope not for another 15 years.

July 24—Spray day for the potato patch, and it is just a patch too. The hills are 15 inches apart each way, but there is something in the soil that makes them grow, at least the tops are growing. They (the tops) are a rich dark green color, and the "something" in the soil is mostly chicken manure. Of course, there was a little dash of 0-10-10 fertilizer as a balancer, but the manure played a rather prominent part in the medication. Poultry manure medication is good for the epizootics of well nigh any soil.

July 25—Some of the auction producers catch their market broilers the night before, but I have always made it a practice to coop them the morning of the sale. Harold and I were waiting for daylight this morning . . . just waiting for it to get light enough to run the birds in the catching coop. We make short work of them once they are in the catching coop. I grade by heft. If they heft heavy enough, they go in the coop; if they are too light, I turn them loose to grow some more.

July 29—I have incinerated lots of varmints in my day, but never before have I incinerated a snake. Snakes give me the creeps, regardless of the breed and variety. When they get about the size of one's wrist and 3½ feet long, I think they are big enough to catch a chick.

July 31—Bought a load of wheat today; 200 bushels. I don't know if I bought at the right time or not. I just don't know; I am so completely confused I don't know if I am coming or going. It has always given me a feeling of being useless to buy grain and have the market go down afterwards. The process is what is known as holding the bag.

C.O.D. means "chicken on delivery" to Glen Bales, a Salinas, Calif., Postal Telegraph messenger boy. When he delivered a C.O.D. package to a rural resident and found the addressee short of funds, Bales had to wait until a chicken was caught and turned over to him to make up the balance, says a newspaper report.

VIEWS OF THE EDITORS

Not An Easy Task . . . But It Must Be Done

Dressers, packers and shippers of dressed poultry have a real problem in the coming months and years. The Federal Food and Drug Administration has plainly indicated that it will not allow inedible dressed poultry to move in the channels of trade. Dressed poultry will be inspected in all the various markets and there will be seizures where there is a possibility of doubt as to the edibility of the poultry from outward appearance of the carcasses.

The Federal Food and Drug Administration has full power to compel the industry to "clean house" as it were. Section 402 of the 1938 Federal Food, Drug and Cosmetic Act, among other provisions, says that a food shall be deemed to be adulterated—"If it consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food"—"if it has been prepared, packed or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health"—"if it is, in whole or in part, the product of a diseased animal or of an animal which has died otherwise than by slaughter."

Section 403 of the 1938 Federal Food, Drug and Cosmetic Act enables the Federal Food and Drug Administration to place the responsibility on the packer or distributor of an adulterated food product. Among the provisions of this section dealing with "misbranding" is paragraph (e) which provides—"A food shall be deemed to be misbranded . . . . (e) if in package form unless it bears a label containing (1) the name and place of business of the manufacture, packer or distributor."

Thus we readily see the Food and Drug Administration can quickly place responsibility because of this mandatory labeling provision. Under the old Food and Drug Act, identity of packer and shipper was often difficult to obtain because so much of the under-grade product was marketed in plain containers.

There is no doubt in our minds as to the sincere desire of a large majority of our industry to comply with all of the provisions of the federal food laws as well as the laws of each and every state. The task is, however, not an easy one.

It will take the conscientious effort of all who do the buying, processing and packing to keep all the worthless types of poultry from the boxes or barrels going to market.

Border-line products getting into the pack may result in seizures. There is a lot of this type of poultry, we are sorry to say. Breeding and feeding programs on the farms of this country will have to be radically changed if this border-line type is to be eliminated. Extremely thin or border-line poultry may be due to breeding, feeding or disease. Extremely thin poultry is going to be looked at with suspicion by food inspectors.

Poultry buyers can determine most of the worthless poultry when grading. They cannot classify all of such but they can do a much better job than they have in the past. It will take more careful scrutiny when handling. It will take a lot of courage at times to tell the seller, whether farmer or trucker, that a chicken or turkey is on the danger line as to edibility or even as to current market value if second grade in quality.

—E. B. Heaton, U. S. Egg and Poultry Magazine, July, 1941.

Summer Income from Eggs

Hot weather has hit us unusually early this year, and its effect on egg quality is well known. Egg quality is sure to decline rapidly unless special care is taken to see that the eggs are properly handled. A report from the United States Department of Agriculture shows that about five per cent, or about 175 million dozens, of all eggs that hens lay turn out to be a total loss, due to careless handling. With hot weather a much greater part of this loss occurs, most of which could be avoided by greater care in gathering, storing and selling.

What then can the poultryman do to reduce this loss and increase his income? First, sell off or segregate all males as soon as the breeding work is over, thus, producing infertile eggs and save losses due to germ development. Second, gather eggs more frequently in hot weather. Eggs are a perishable product and if they can be kept clean and cool, we have gone a long ways towards maintaining the original high quality. Third, if possible, cool eggs to 50 degrees Fahrenheit as soon as gathered. Open wire baskets should be used and the eggs placed at once in a cool room. Galvanized pails should not be used for gathering eggs, or holding them as they do not permit them to cool rapidly enough. Also, cases should be cooled before eggs are packed in them. Fourth, keep eggs cool on their way to market. It is more or less a waste of time to cool eggs after gathering, and then overheat them in transit to market. Fifth, market eggs frequently during hot weather. Most marketing agencies have facilities for holding eggs at cool temperatures. Besides, the shorter holding period on the farm means that higher egg quality can be maintained.

These five guides will all add up to a better price for eggs produced because of better quality. That is every poultryman's goal.

—Rural New Yorker, June 28, 1941.

Defense Speeded

The poultry industry is now feeling the effects of the suddenly accelerated defense program in various ways. Restrictions and controls ordinarily not invoked until there is actual warfare are in effect.

FARM HELP has become scarce. Selective Service has taken many young men from farms, and local draft boards have been instructed to give consideration to requests for deferment of young men in Class 1A in areas where a farm labor shortage exists.

The greatest competition for farm labor has come from industries doing defense work. They are paying wages that no poultryman can meet.

Some poultry farm owners are meeting the labor shortage by getting along with fewer men and asking those who remain to work longer at higher wages. Others are developing short-cuts and labor saving practices.

EQUIPMENT manufacturers who had no trouble getting materials a few months ago are now experiencing difficulty in obtaining steel, aluminum, copper, and brass. One poultryman had to wait well over a month to obtain a heavy grade of poultry netting which he needed for new range shelters. A manufacturer of an aluminum anti-pick device is now investigating the possibilities of substitute materials.

FEED COSTS in the East are about 10 per cent higher than they were a year ago. Some further increases are likely because of the rise in cost of certain ingredients. Grains are plentiful, in fact, the carryover of grains is the largest on record. Prices on wheat and corn are controlled by the government through its loans.

Some fear has been expressed as to a shortage of feed in the East because of a possible lack of transportation as a result of heavy demands on railroads for shipment of defense goods. Something like 10 million bushels of grain owned by the government have been moving into the East for storage at such points as Buffalo, Albany, Philadelphia, Baltimore, and other cities. This move should avert the danger of any sudden shortage of corn, at least, in the East.

Movement of this grain was necessary also to make room for the new crop now being harvested. Storage space in the grain belt has been filled with the heavy surplus of grains which accumulated as a result of the government's program of loans to wheat and corn growers. The railroads have made more cars available for hauling the grain, and they are confident that they can handle the new crop of wheat as long as there is proper storage space into which it can be unloaded.

PRICES on certain grades of eggs at New York City have been running 40 to 50 per cent higher than a year ago. The egg-feed ratio is more favorable than it was in the two preceding years. The net return over feed from a 1,000-bird flock of Leghorns laying at a 50 per cent rate, according to the New York State Department of Agriculture, was $43.93 for the week ending June 12 compared to $22.95 for the same week a year ago.

Poultry raisers must recognize that the government is the main factor in the egg and poultry price situation. It is the biggest egg buyer. It has established an artificial price to stimulate the production of egg for Britain. And while it has the power to buy eggs at prices higher than market conditions might warrant, the government also has the power to prevent what it considers too high a rise in price. Eggs which it purchases can be thrown back on the market again. Whether such action could occur in the fall when egg prices normally rise cannot be foretold.

In the unlimited emergency which now exists, we have to expect more and more control. Whether or not these controls can be dropped will have to wait until Hitler's war machine has been crushed.

—Everybodys Poultry Magazine, June-July, 1941.

Freezing Eggs in Food Storage Lockers

Commercial freezing of egg whites and yolks has been practiced successfully for many years, but little if any work has been done to adapt the process to small-scale use in the home. A successful procedure for such small-scale freezing, as well as experiments with the use of frozen eggs in cooking, has been carried out this winter by Gladys Hedlund, graduate assistant, under the supervision of Miss Agnes Kolshorn, associate professor of foods and nutrition.

Egg yolks, particularly, require treatment before putting in a frozen locker, else they will be gummy and difficult to use when removed from storage. Miss Hedlund's experiments showed that the addition of a small amount of honey to the eggs before freezing is the most effective treatment, although salt, sugar, or corn syrup may be used satisfactorily for this same purpose.

Eggs for freezing must be clean before breaking and need to be

handled in a sanitary manner, as it is important to keep bacterial contamination to the lowest possible point. For that reason cracked eggs are not recommended for use in freezing, even though the eggs are broken before being stored.

Yolks and whites may be frozen together, although they are more commonly separated for convenience in later use. Miss Hedlund found that the use of small dishes for separating these is advisable as then an occasional bad egg will not spoil the large batch.

Whites can be placed immediately in waxed cartons or jars and need no treatment. Yolks are stirred thoroughly and 1 tablespoon of honey is added to every 2 cups of yolk. One tablespoon of sugar or 1 teaspoon of salt may be substituted for honey.

—The Eggsaminer, May, 1941.

Mortality Affects Egg Costs

The Washington Co-operative Chick Association's latest yearly records show that, with an initial number of 2,400 trapnested pullets, the average annual egg production obtained on a hen-day basis was 258 eggs. The actual death loss among these pullets during the year totaled 8.4 per cent and 25.1 per cent were culled—a total loss from mortality and culling of 33.5 per cent.

The previous year, the average egg production on a hen-day basis was 232 eggs and the year before that, 233. The mortality and culling losses for the corresponding years were 44.8 per cent and 36.5 per cent. The average egg weights ranged from 24.43 to 25.16 ounces per dozen.

The cost of producing a dozen market eggs is very materially affected by the average egg production of the flock. The average egg production, based on the number of birds at the beginning of the laying year, is even more important than the average number of eggs laid on a hen-day basis. The former figure reflects the effects of mortality and culling to a far greater degree than the latter.

It costs money to rear laying pullets to replace the layers that die or have to be culled. Longevity, as well as ability to lay well, is, therefore, a very important economic factor to the market egg producer. The fewer birds that die, the fewer that have to be culled, the higher the average annual egg production should be, based on the number of hens at the beginning of the year.

—Nulaid News.

Ventilating the Broiler House

By C. E. LEE
Beacon Milling Co., Cayuga, N. Y.

Condensed from the Peninsula Broiler Journal

MANY different systems of ventilation were used in a program of research in poultry house ventilation which was inaugurated in 1928 at the Beacon Poultry Research Farm. Finally, a system of outtake tubes capped with monitor (swinging) type ventilators was developed. This proved to be highly effective for northeastern conditions.

When properly installed, back drafts do not occur. At the same time, in cold weather, the heat from the birds is conserved so as to continually maintain a temperature differential between the inside atmosphere and that outside, speeding circulation. Even a wind of less than 5 miles per hour will create adequate air movement inside the house and gravity ventilation is maintained to some extent even with no movement at all of the outside air currents.

This system has been particularly successful with laying houses, and it proved to be more efficient in the average laying house than many of the far more expensive systems.

On the Del-Mar-Va Peninsula, the majority of broiler producers do not want to go to the expense of installing a ventilation system complete with outtake tubes, metal ventilators, and provisions for adjustable intakes.

Humidity High

Because the humidity on the Del-Mar-Va peninsula is higher than in many other sections of the country, and because broiler houses usually are not built with insulated walls, the problem of eliminating condensation on the walls and on the litter is much more difficult than in many other sections. The difficulty is increased by the fact that many more chicks are raised per square foot of floor space than is the case in those areas where the weather is too severe to let the chicks out of doors during the winter.

It was obvious from the beginning that ventilation methods which would give satisfactory results in central New York would not prove equally satisfactory on the broiler plants of the Del-Mar-Va peninsula.

One favorable condition, however, existed on these broiler plants. This was the use of the coal stove brooder. The coal stove dries out the air in the brooder house far more than the electric or gas brooder and, on the average, probably more than the oil brooder. Furthermore, there is a draft going through the coal stove brooder. This means, of course, that there is a steady suction. Here we have the key to the problem.

The Peninsula Broiler Journal, Selbyville, Dela., June 2, 1941

If we had an electric brooder operating in a house, we would have to install a small electric fan in order to move the air. The coal stove, however, pulls air in and sends it out through the smoke-pipe, thus providing a steady pull of fresh air into the house. Of course, this is not always enough in a crowded brooder house, even in cold weather, but it provides a way to solve this ventilation problem during the first two weeks of brooding when only a little air is needed and when strong drafts are very dangerous to the young chicks.

Double Hung Windows Used

Arrangements were made with a number of broiler producers to try out a system based on the use of double windows with sliding sash, similar to the type used in an ordinary dwelling house, and taking advantage of the air pull of the coal stove. After some experimentation with different adjustments, a system which has proven extremely satisfactory was worked out. It costs the broiler producer nothing extra over what he would ordinarily spend on the broiler house except for the sliding windows. These are probably no more expensive in the long run than cloth curtains or some of the numerous glass substitutes.

This method of ventilation takes advantage of the air pull of the coal brooder stove. When the chicks are first put under the hover, their air requirements are extremely small compared with the cubic capacity of the house. Imagine living in a house at least 30 times as high as yourself, from floor to ceiling. That's just what the chick does. For that reason, all the air that is needed the first few days frequently can be drawn in by the coal brooder stoves around the doors and windows and through ordinary cracks and crevices.

In a new and tightly built house, it is best to raise the lower half of each double window just a short distance above the sill. As a matter of fact, in cold weather one window to a hover will be enough, and this need be raised only a half inch or so. Since the rest of the house is closed tight and there is no outtake except through the smokepipe of the brooder stove, only a very limited amount of air will come in through the window.

Air Needs Increase With Age

As the chicks grow larger, they will need more air and each window can be raised somewhat higher. Even with the windows raised a considerable distance from the bottom, there is little likelihood of a draft because the air is drawn in only as air goes out the smokepipe of the brooder stove.

If windows are open to a considerable extent, however, and there happens to be a hard wind blowing directly at the front of the house, then the windows must be adjusted accordingly, otherwise, the warm air will be blown away from the brooder stove as fast as it is heated and the thermostat will keep the draft open so that the stove will get very hot. Common sense and a little experience is all that is needed to operate this system satisfactorily.

As Chicks Get Older

Depending on the weather somewhat, but more on the age and size of the chicks, we eventually come to a point where the second step in the ventilation adjustment must be made. Usually, at around three weeks of age, it becomes necessary to drop the upper half of each window a little way so as to allow for a rolling circulation in each pen.

At that age the air passed through the brooder stove does not provide sufficient ventilation, so, in addition to this air which is being drawn in by the stove and sent out the smoke pipe, we have to allow also for some of the warm air, loaded with moisture, to escape out over the tops of the windows and, since we have the brooder stove going in the pen and the temperature is therefore warmer than it is outdoors, we have a satisfactory differential maintained and can get a rolling circulation.

The air comes in over the window sills and part of it goes through the brooder stove. The rest is warmed by the stove and spreads around the house and, as it is warmed and expands, it picks up moisture from the air and the litter. While still warm, it moves upward, and as it hits the ceiling begins to cool a little and tends to settle, but is still pushed toward the front of the house by the rolling motion of the incoming air over the window sills. This air coming in over the window sills, of course, strikes back across the house eventually bringing up against the back wall and curving upward having been heated and taken on moisture as described. With the continuance of this rolling motion, it moves forward and goes out over the tops of the windows which have been dropped an inch or two for this purpose.

As the chicks increase in age, the windows drop further from the top until finally both halves of the double window are opposite each other and are right in the middle of the window frame having an equal space open at both top and bottom. This is continued through the rest of the growing period.

We have had an opportunity to check on the effectiveness of this system on many different farms over the past seven or eight years and we feel that unquestionably it is the one practical and inexpensive method of ventilation which is suited to broiler houses on the Del-Mar-Va Peninsula.

Of course, this system is not 100 per cent perfect and we don't know of any other system, cheap or highly expensive, which is perfect. This system, however, is being used on hundreds of Del-Mar-Va broiler plants with the greatest satisfaction. As long as the coal stove brooder continues to be used on the Peninsula, this system will prove the most satisfactory from all angles, investment, operating cost, and efficiency.

If broiler producers finally change to some other type of brooding which does not include a smoke pipe, for example, an electric brooder, then they will have to find another system of ventilation. With low electric rates, it might easily be possible for the saving in labor by the use of the electric brooder to more than offset additional cost for the more expensive ventilating system but, the relatively high cost of electricity, and the relatively low cost of coal and coal brooder stoves on the Del-Mar-Va peninsula, lead the writer to believe that, for the present at least, broiler producers are using the most practical method of brooding.

Extensive vs. Intensive Poultry Keeping

By **JOHN E. KIMBER**
Niles, California

FOR centuries, chickens have been kept as a by-product on general farms. That such natural conditions tend to develop healthy hens hardly need be debated. However, there is not a great deal of exact information as to results obtained, either with regard to livability or production. Losses are seldom recorded. Even in hatching and brooding, while the hen seems to know just how to hatch every egg, many eggs are broken and nests deserted, while many chicks that are hatched by hens die or are killed by cats, rats, or birds. Pullorum disease is widespread and serious in countless farm flocks. So are such diseases as tuberculosis and cholera. On the whole, ranging chickens over general farms involves some losses which are forgotten about because the balance sheet as a whole is favorable.

Farm Flock Costs Low

From the standpoint of cost of production, it is easy to see that the farm flock, especially if not too

From the Catalog of Kimber Poultry Breeding Farm, Niles, Calif.

large, picks up most if not all of its feed from the field, thus almost eliminating the largest single item in the cost of producing eggs. and also the next largest item, labor. In doing this, the birds make good use of what would otherwise be wasted. They actually convert waste into cash. Furthermore, the abundant supply of fresh greens, vitamins, minerals, and other essential parts of a well-balanced ration, reduces diseases of a nutritional origin almost to the vanishing point, except when extremely severe weather, drought, or other abnormal conditions prevent the birds from finding all they need for themselves. At such times, a comparatively small outlay for a supplemental ration will keep the flock in good condition.

With the family flock on the general farm, then, the specialized commercial poultryman can hardly hope to compete. The moment the farm flock is enlarged, however, the picture changes. It becomes necessary to provide more housing. The enlarged flock cannot find all the grain it needs, so more and more feed must be supplied, while with a larger number of birds, disease is more likely to become prevalent. More time is required to care for the birds. One cost after another is added, until the margin between the cost of production of the large farm flock and the specialized commercial poultry farm is not so great. Still, the farm flock does not have to carry any appreciable overhead costs.

Specialized Poultry Farming

The moment we leave the general farm and enter poultry keeping as a specialized business, it becomes necessary to add many costs which the income from the chickens must meet. Interest on investment in land, cost of such buildings as the poultryman's residence, insurance, taxes, maintenance, and depreciation, as well as many other costs, must now be charged against the chickens. At this point, it becomes absolutely necessary to make a serious study of every phase of the business, from choice of the most desirable breed to determining how the increased output of eggs and meat is to be marketed.

And the moment we get into specialized poultry keeping we can only hope to compete with the low unit costs of the farm flock by keeping the best possible chickens, managing them both properly, and yet as economically as an adequate ration, good housing, and good sanitation will permit, by producing the highest possible quality products, by marketing them to the best advantage, and by successfully solving every other problem which may present itself.

Industrial Poultry Districts

For some years, the tendency has been for specialized poultry farms to keep more and more birds on less

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have become second only to feed in many flocks. Few other branches of livestock farming could stand such an annual replacement cost, and poultrymen cannot stand it indefinitely.

Difficulty in Disinfecting Yards

The more chickens kept per acre, the sooner soil contamination becomes excessive. Many poultrymen escape serious consequences for a few years. Ultimately, however, the poultryman who keeps a large number of chickens on a very limited acreage finds that he simply cannot raise a healthy flock, his mortality has skyrocketed, and replacement costs wipe out every cent of profit.

So far at least, there is no known

off the ground for from one to two years, which means abandonment of dirt yards most of the time where the yards are small and the birds many.

Concrete Yards

As a result, many commercial poultrymen have installed concrete or other hard-surfaced yards which can be effectively cleaned and disinfected. Others have constructed sunporches with wire mesh or slatted floors to which the birds are confined. These measures have materially reduced parasitic infection from contaminated soil, but they still fall far short of what can be called really satisfactory sanitation.

large, picks up most if not all of its

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With the family flock on the general farm, then, the specialized commercial poultryman can hardly hope to compete. The moment the farm flock is enlarged, however, the picture changes. It becomes necessary to provide more housing. The enlarged flock cannot find all the grain it needs, so more and more feed must be supplied, while with a larger number of birds, disease is more likely to become prevalent. More time is required to care for the birds. One cost after another is added, until the margin between the cost of production of the large farm flock and the specialized commercial poultry farm is not so great. Still, the farm flock does not have to carry any appreciable overhead

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Industrial Poultry Districts

For some years, the tendency has been for specialized poultry farms to keep more and more birds on less and less land. Today, many if not most of the country's commercial poultry farms are in rather closely settled districts in which many of the farms specialize in egg production. In such districts, it is not uncommon to find more than a hundred thousand hens per square mile. The result is what always happens when great concentration of population takes place. Diseases and parasites multiply, and the mortality rate rises sharply.

As the mortality rate increases, replacement costs also increase. The situation has become so acute throughout the entire country that today it is estimated that mortality in many states exceeds 40 per cent per year, while replacement costs have become second only to feed in many flocks. Few other branches of livestock farming could stand such an annual replacement cost, and poultrymen cannot stand it indefinitely.

Difficulty in Disinfecting Yards

The more chickens kept per acre, the sooner soil contamination becomes excessive. Many poultrymen escape serious consequences for a few years. Ultimately, however, the poultryman who keeps a large number of chickens on a very limited acreage finds that he simply cannot raise a healthy flock, his mortality has skyrocketed, and replacement costs wipe out every cent of profit.

So far at least, there is no known way of disinfecting dirt yards that is practical, by which is meant no known way of destroying the germs, worm eggs, and other parasites that have become embedded in the soil. Various schemes have been tried, such as alternating yards more or less frequently, growing green crops in vacant yards, liming, plowing, spading, etc.

The fact remains that if any appreciable number of hens are kept in dirt yards, those yards will in time become highly contaminated. Coccidia and worm eggs live in the soil and retain their infective nature for a considerable period of time. Therefore, alternating the yards does little more than delay the day of reckoning, unless the birds are kept off the ground for from one to two years, which means abandonment of dirt yards most of the time where the yards are small and the birds many.

Concrete Yards

As a result, many commercial poultrymen have installed concrete or other hard-surfaced yards which can be effectively cleaned and disinfected. Others have constructed sunporches with wire mesh or slatted floors to which the birds are confined. These measures have materially reduced parasitic infection from contaminated soil, but they still fall far short of what can be called really satisfactory sanitation.

If concrete yards are used, and left bare, even though cleaned frequently, which takes considerable labor, the birds will eat a great many droppings. If they are covered with some sort of litter and it gets wet, they must either be cleaned very often or chronic coccidiosis and roundworms may run rampant. If the droppings under the wire or slatted sunporches are not removed frequently, flies will breed in them and heavy tapeworm infestation may follow.

Moreover, contaminated soil is not the only sanitation problem inherent in congested poultry districts. Many of the most serious poultry diseases may be spread by such carriers as flies, birds, mice, and rats. A few such diseases are pullorum, aertrycke, chickenpox, cholera, tuberculosis, and infectious laryngotracheitis.

Complete Confinement

There are three more possible steps. (1) The birds may be confined entirely to the house, with no attempt being made to keep such disease carriers as flies and mice out of the house. (2) The birds may even be confined to individual cages, each holding a single hen, a system which will be discussed later, but which involves excessive investment and labor costs with doubtful benefit to the hen herself. (3) Or, the birds may be confined to moderate-sized pens in the house and the house screened in such a way that flies, birds, mice, and other carriers of disease cannot enter in at all.

Unless such an extreme system as the last mentioned will make possible sufficiently better sanitation and control of disease to justify it, the commercial poultryman cannot afford to adopt it. If, however, such a plan will make it possible to control diseases and parasites, reduce mortality, increase production, and reduce the cost of production, then it would seem to be justified.

Such an intensive form of poultry keeping admittedly results in several very definite problems which must be solved successfully if the plan is to prove practical. If those problems can be solved, however, it would seem that the industry will have advanced a long way.

It would seem that if poultry keeping is to remain profitable in great industrial poultry districts, where millions of hens are kept on comparatively few square miles, some way must be found to reduce mortality in a positive manner. The commercial poultryman or breeder who has many acres of well-drained soil, and the time to keep large alternate yards beautifully cropped and in fine physical condition, may possibly be most successful by sticking to a system which may be said to provide more or less "natural" conditions. The poultryman who has only a few acres, however, and

who cannot avoid excessive soil contamination, may be forced to adopt a system or more or less "controlled conditions" or go out of business.

Need for Research

At the present time, it may be too early to know what is the best plan for the commercial poultryman to follow. However, experiments are under way which give promise of throwing considerable light on the relative livability and performance of birds of identical breeding reared and kept under different conditions. In due time, we will have facts rather than theories to show whether birds reared and kept under carefully controlled conditions but in complete confinement will live as well, lay as well, and reproduce as well as their full sisters which are reared on large alfalfa ranges, "close to nature."

Solving the Poultry Health Problem

The poultry disease problem ranks as the greatest obstacle to successful poultry keeping. In no other branch of livestock could the losses be so severe and yet farmers continue to do business. Poultrymen can suffer these losses and still remain in business only because of the small intrinsic value of the chicken, which can be readily replaced at a comparatively small cost.

Because chickens are kept on 85 per cent of the farms in the United States, most farm people are affected by favorable or unfavorable conditions in the poultry industry. It has been estimated that the annual loss for the northeastern and north-central states, which constitute about 60 per cent of the poultry population of the United States, is in excess of $95,000,000. The annual loss from poultry diseases throughout the entire country at this same rate would amount to more than $150,000,000.

The direct loss from dead chicks and hens represents only a part of the story. Other losses occur in dead embryos, culled fowls, poor egg production, and increased overhead expenses involved in running a poultry enterprise at partial capacity.

It will never be possible to entirely eradicate all poultry diseases. The successful poultryman, however, is always on the alert to prevent disease. Should he fail in this, he should be able to identify disease and then endeavor to correct the situation.

—Pennsylvania Poultry Health Book.

Chicken—From the Jungle to America

By E. H. PLATT
Connecticut Department of Agriculture

Condensed from Connecticut Circle

MYSTERY and ancient sacredness, blended with a certain amount of fiction, make the fowl perhaps the most conspicuous of all birds, animals, or plants. In China, its early history was perhaps the saddest for the bird, for very early the natives found it to be a delicate parcel of food. In Persia, it was an object of sacrifice; in India and Greece, the early history of the bird is based mainly on the ability of the cocks to fight, while among some people it was considered an animal of great religious significance. Great changes have taken place in the domesticated hen since the first crow of her ancestors was heard in the bamboo jungles of India.

Rooster Comb Medicine

The rooster was once regarded as the possessor of many mystic qualities. It was believed that while the devil would never enter the house of one who slaughtered a white cock with a divided comb, that person would eventually lose all his possessions.

Bad habits could be made to leave a man if he drank of a solution containing the dried comb of a rooster, while the insane were cured by the smoke of either the comb of a red or white rooster. Loss of memory was cured by taking in the morning, on an empty stomach, a mixture of the gall of a rooster and mutton broth. Pain was relieved immediately by taking pills made of pounded dried flesh of a rooster with equal quantities of gallnuts and sumach.

Perhaps the most fictitious belief of long ago was that the cock laid one egg in a life time, but that was a small one. At this point fiction writers have seen fit to leave well enough alone and, so far as is known, this little egg was never hatched.

When the sun rose on that memorable day in 1620, our forefathers did not see the shore and tree tops covered with Plymouth Rock fowls crowing lustily and bidding the weary voyagers welcome. Nor did the Pilgrims capture the Wyandotte fowl from the Wyandotte Indians. Those are two of New England's own distinctive breeds and are of comparative recent propagation.

From "The History of Poultry," Connecticut Circle, March, 1941
Wyman Publications, Inc., Box 246, Old Lyme, Conn.

The hen, next to the dog, has been man's most constant attendant in his migrations and occupation of new land. Search where you will, and you find fowl sharing in the possession and settlement of man, excepting in the highest latitudes.

Early History Vague

The earliest history of bringing the fowl into complete bondage is highly disputable. Some writers put forth the theory that hens are of Persian origin. Aristotle, who wrote 350 years before Christ, speaks of them as familiarly as the historian of today. The Roman authors of the Christian era recorded that they classed into such numbers of distinct varieties as could only have been the result of long cultivation.

No one knows the earliest date of poultry-keeping. It is believed by some that it is coeval with the keeping of sheep by Abel, and the tilling of the ground by Cain—a supposition which can not be far from probability, if there is any foundation for the legend that Gomer, the oldest son of Japhet, took a surname from a cock.

From Jungle to America

Early explorers into jungle regions have brought back to civilization many species of wild fowl. Through many years of breeding and cross-breeding, the poultrymen have given to this country what is today one of its most valuable assets—the American hen, and her one and a quarter billion dollar industry.

The importance of an industry must be judged from the standpoint of both production and consumption. Poultry raising is a business engaging the attention of farmers, laborers, business men, professionals, and other classes of people. In fact, the claim may be made that more individuals are directly interested in keeping and breeding fowls than in the production of any other class of animals or any class of plants.

Fowls in their wild state produced only enough eggs for hatching. Eggs, because of their palatability, were considered the most important factor in poultry-keeping from the very first. Intensive breeding for production was started and has been interspersed with breeding for size and quality of flesh.

Less than a century ago the poultry industry took on a commercial aspect, with the importation of many Asiatic breeds and the holding of the first poultry show in this country in 1849. From that time on, the industry has developed from a by-product and neglected side-line on the average farm until today the farm flock is considered one of the most efficient branches of farm operations.

Preventing the False Molt

A false molt or early egg slump in pullets after several months of laying may be due to various causes—colds, worms, lice, lack of vigor or other inherited weakness. But mainly it is caused by one of two things:

Under-development of the birds during their growing period, before laying commences,

Or, failure to get enough feed into the birds to keep up body weight as they climb from 40 per cent to 50 per cent to 60 per cent production and over.

Obviously, pullets which lack size and capacity at the beginning of laying, and which therefore have a natural urge to grow as well as to lay, are bound to lose their surplus flesh and go down to mere "skin and bone." They may do fairly well as long as the weather is warm, but with the first sharp cold snap they buckle up and slump badly. On the other hand, pullets which are well grown and developed before beginning to lay can keep enough surplus flesh to give them resistance against cold snaps or other shocks.

Twenty to 22 pounds of total feed per 100 birds per day (balanced laying ration) will keep pullets in good flesh up to about 40 per cent production, but by the time they get up to 60 per cent production they need 26 to 28 pounds per day.

—J. C. Neale, Checkerboard News, June-July, 1941.

Radio Keeps Crows Away

Crows were taking chickens from Mrs. Everett Corwin of So. Royalton, Vt. The chicken range was quite some distance from the farmstead, so the crows could "pick off" chickens whenever they desired.

Mrs. Corwin finally had a battery radio set mounted on a high pole on the range. The radio was then tuned to a nearby station and left on from early morning to late in the evening. The programs coming from the radio speaker did the trick—they frightened the crows away from the range.

In the late summer or early fall, one of Mrs. Corwin's sons suggested that the radio be taken down. This was done. Lo! and behold, the crows came back and started taking chickens again.

Mrs. Corwin did not report on just what type of program gave the greatest fright to the crows.

—D. C. Henderson, Vermont Poultry Letter, July 1, 1941.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	May 1	June 1	May 1	June 1	Aggregate Jan.-June	May 1	June 1	Aggregate Jan.-June
North Atl.									
1930-39 (Av.)	97.5	86.0	82.5	59.5	55.0	274	51.1	45.1	245
1940	97.2	84.2	80.2	59.1	57.0	288	49.6	45.9	254
1941	95.4	83.2	80.1	60.9	56.9	302	50.9	45.8	265
E. N. Cent.									
1930-39 (Av.)	108.8	95.9	89.9	58.6	52.9	251	56.3	47.8	251
1940	110.8	97.3	91.3	58.4	55.8	262	56.9	51.0	266
1941	110.3	95.4	89.9	60.2	55.5	278	57.4	50.0	278
W. N. Cent.									
1930-39 (Av.)	117.6	105.6	98.3	56.4	50.8	231	59.5	49.8	250
1940	118.6	109.5	102.4	58.7	54.0	242	64.2	55.2	271
1941	116.1	106.3	100.0	59.9	54.4	260	63.8	54.4	284
South Atl.									
1930-39 (Av.)	58.6	50.0	47.8	51.8	46.4	244	25.5	21.9	129
1940	59.9	53.3	51.2	52.8	49.2	253	27.7	24.7	139
1941	59.4	49.9	47.9	54.8	48.9	267	26.6	23.1	141
South Cent.									
1930-39 (Av.)	64.4	54.1	51.2	51.8	45.6	237	27.9	23.2	137
1940	65.8	56.5	52.4	53.0	47.7	235	29.8	24.9	138
1941	62.7	53.5	50.7	55.4	49.5	261	29.5	25.1	148
Western									
1930-39 (Av.)	73.2	65.9	63.2	59.1	54.3	270	38.9	34.6	182
1940	73.7	64.4	62.4	59.1	54.2	283	38.1	33.8	187
1941	71.6	63.3	60.5	58.2	54.5	284	37.0	33.1	184
United States									
1930-39 (Av.)	84.0	73.4	69.2	56.1	50.6	246	40.8	34.6	187
1940	85.1	75.3	70.8	57.1	53.0	255	42.5	37.1	197
1941	83.2	72.7	68.9	58.6	53.5	271	42.2	36.5	205

Egg production in May, equivalent to 13,483,000 cases, was 1 per cent smaller than layings of May 1940 and 2 per cent larger than the 10-year (1930-39) average. About 3 per cent fewer layers in May this year than last year more than offsets a 2 per cent increase in the rate of lay. May egg production was smaller than last year in all parts of the country except in the East North Central and North Atlantic States where it was the same or slightly larger. Production exceeded the 10-year average in all areas except the Western States where it was 14 per cent below average. The aggregate egg production for the first 5 months of this year exceeded the aggregate of last year by 4 per cent and the 10-year average by 7 per cent and was only 3 per cent smaller than the record high production for this period in 1930 when the number of layers was about 12 per cent greater.

The rate of egg production per layer during May averaged 17.35 eggs compared with 17.03 eggs last year and 16.76, the 10-year average. This year's May rate exceeded last year and the 10-year average in all parts of the country except the Western States and established record high May rates in the West North Central and South Central States.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Reports of receipts of eggs at leading Central Western packing plants indicate marked increases in production the past few weeks as compared to a year ago. Beginning in May, when receipts at these plants were reported to be slightly less than for the corresponding weeks in 1940, receipts have consistently shown increasing gains over a year ago. For the week ending June 14, this gain totaled 32 per cent. Weekly reports of Eastern egg auctions show increases of 6 to 10 per cent over a year ago. On the Pacific Coast, where production during May ran 12 to 13 per cent under 1940, the present discrepancy is less than 10 per cent. Receipts at the four larger markets have not reflected production as would normally be expected, due in part at least to increased egg breaking operations and considerable buying in smaller markets by the Army and Navy. Up to the twenty-fifth of June, receipts at the four markets were approximately 14 per cent below those of the same period a year ago. For May, they were 18 per cent less. May receipts for the New England and South Central sections showed increases over last year, while other areas declined, particularly on the Pacific Coast, where receipts were about 78 per cent less.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
June 7	28	34,526	+4.34	+ 9.06
June 14	26	31,994	–8.84	+ 6.23
June 21	23	26,182	–4.71	+ 7.47
June 28	28	31,051	+5.03	+19.15

—Compiled from U. S. D. A. market reports.

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
June 7	60	59,904	67,747	–1.89	–11.58
June 14	60	60,581	67,007	–3.50	– 9.59
June 21	61	57,384	63,359	–4.51	– 9.43
June 28	62	56,361	61,353	–2.58	– 8.14

—Compiled from U. S. D. A. market reports.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	May 1941	May 1940	May % change	Jan. to May, Inc. 1941	Jan. to May, Inc. 1940	Jan. to May, Inc. % change
New England	45,578	43,265	+ 5.3	262,665	239,394	+ 9.7
Middle Atlantic	251,675	269,521	– 6.6	1,156,918	1,090,503	+ 6.1
South Atlantic	25,704	43,638	– 41.1	131,204	160,487	–18.2
East North Central	501,257	512,968	– 2.3	1,719,014	1,715,160	+ 0.2
West North Central	995,435	1,345,490	– 26.0	3,796,923	4,205,774	– 9.7
South Central	14,353	8,228	+ 74.4	60,430	65,385	– 7.6
Mountain	28,294	36,722	– 23.0	116,709	194,384	–40.0
Pacific	7,240	32,352	– 77.6	43,795	235,051	–81.4
Miscellaneous	316	540	– 41.5	2,211	2,331	– 5.1
TOTAL	1,869,852	2,292,724	– 18.4	7,289,869	7,908,469	– 7.8

Receipts of Dressed Poultry (pounds) at 4 Markets*

New England	1,416,038	1,886,396	– 24.9	2,550,485	4,020,953	–36.6
Middle Atlantic	8,118,134	5,338,274	+ 52.1	17,819,554	13,995,068	+27.3
South Atlantic	4,649,531	1,721,331	+170.1	14,726,839	10,711,864	+37.5
East North Central	2,685,225	2,456,620	+ 9.3	14,283,445	15,232,781	– 6.2
West North Central	8,794,096	10,053,987	– 12.5	44,964,432	54,439,151	+17.4
South Central	2,281,324	2,337,832	– 2.4	8,551,612	9,015,111	– 5.1
Mountain	104,855	271,375	– 61.4	2,450,212	2,685,677	– 8.8
Pacific	1,155,197	1,083,930	+ 6.6	6,708,721	8,739,503	–23.2
Miscellaneous	0	71,000	–	0	71,000	–
TOTAL	29,204,400	25,220,745	+ 15.8	112,055,300	118,911,108	– 5.8

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1941	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1941	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1941	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) % Chg.
June 7	271,374	208,676	+30.04	2,635	4,052	–34.95	590	427	+38.02	1,709	3,208	–46.73
June 14	242,813	183,500	+32.32	2,983	3,980	–25.05	806	564	+42.83	1,773	3,077	–42.39
June 21	230,403	174,140	+32.31	3,009	3,860	–22.05	967	732	+32.17	1,725	2,849	–39.43
June 28	226,929	146,284	+55.13	2,841	3,513	–19.12	1,127	772	+46.04	1,599	2,544	–37.11

Egg-Feed Ratios

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1940	Dozens of Eggs to Buy 100 lbs. of Laying Ration 10-Yr. Avg. 1931-40	Price of Fresh Graded Firsts (Dollars) 1941	Price of Fresh Graded Firsts (Dollars) 1940	Cost of Ration per 100 lbs. (Dollars) 1941	Cost of Ration per 100 lbs. (Dollars) 1940
June 7	5.66	7.82	6.99	.243	.157	1.379	1.232
June 14	5.62	7.57	6.86	.246	.157	1.386	1.226
June 21	5.43	7.74	6.89	.257	.157	1.397	1.219
June 28	5.19	7.57	6.97	.274	.157	1.424	1.193

—Compiled from U. S. D. A. market reports.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
May	7.37	10.18	8.64	8.07	11.02	8.11
January-May	7.54	9.77	7.59	8.25	9.90	7.61
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
June 6	8.1	10.8	9.9	.26	.175	.18	2.10	1.89	1.79
June 13	8.1	10.6	9.6	.262	.178	.182	2.11	1.88	1.75
June 20	7.9	10.9	9.4	.272	.178	.184	2.14	1.94	1.73
June 27	7.4	10.5	8.8	.295	.178	.195	2.19	1.86	1.72

—Compiled by N. Y. State Department of Agriculture and Markets.

Egg Prices

Pronounced firmness developed on the egg market during June, with prices advancing three to five cents on the various grades, the U. S. Department of Agriculture reports. Competitive demand for restricted supplies were the basis of strength rather than heavy Government buying, such as prevailed during May. Favorable statistical changes stimulated speculative buying, October futures at Chicago moving from 27.5 cents on June 2 to 30.3 cents on June 24, with spot prices paralleling this movement. Lower grades were strengthened by restricted receipts as liberal quantities were needed to fill frozen egg committments on Government purchases. Prices at New York and Chicago were 11 to 12 cents higher on principal grades the fourth week of June than during the same period last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	June 6	June 13	June 20	June 27	June 27 '40
Mixed Color Firsts	25	25¾	26½	28¼	16½
Nearby and Midwestern White Premium Marks	27½-29	28½-30	31-32½	33-34½	20½-22
Nearby and Midwestern White Exchange Specials	27	28	29¾-30½	32¼-32½	20
Pacific Coast Specials	33½-34	34-35	36-36½	37-37½	26½-27
Nearby and Midwestern Brown Specials	27	27½	29½	30	19

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1							

Government Purchases

Purchases of frozen eggs continued at a liberal rate during June with no indication of abatement. During the first four weeks of June, 6,239,940 pounds were accepted. During May, 15,528,750 pounds were purchased, bringing the total to date to 21,768,690 pounds. Storage holdings in the 35 markets increased 22,191,000 pounds for the three weeks period ending June 21, as compared to 16,651,000 pounds the same period last year, or an increased rate of 36 per cent.

Government purchases of powdered eggs the first four weeks of June totaled 735,050 pounds, bringing the quantity purchased to date to 1,609,000 pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Purchases of Eggs by the U. S. Department of Agriculture

Week ending as of 1941	Shell		Frozen	Dried
	1940	1941	1941	1941
	Cases	Cases	1,000 pounds	1,000 pounds
May 3	34,099	141,756	——	——
10	55,852	137,606	——	——
17	80,591	103,233	12,642	618
24	254,296	42,000	1,247	100
31	260,475	35,600	1,638	157
June 7	263,265	25,201	1,379	145
14	233,560	10,400	1,776	350
21	199,261	2,800	1,801	100
28	161,895			

Eggs in Storage

Net increases in holdings at the 35 markets June 1 to 21 were approximately 34 per cent less than during the same period last year, and at the four principal markets the volume fell off about 50 per cent from last year's level. On June 1, shell eggs in storage totaled 5,377,000 cases, and while this was about 10 per cent less than reported on the same date last year, it was more than the trade generally anticipated. During June 1940, shell egg stocks increased 1,529,000, making the July 1 total 7,513,000. In view of the current trend of increases in the 4 and 35 markets total, holdings on July 1 will fall considerably below last year's level. Of the total holdings on June 1, there were 415,000 cases held by Government agencies, as compared to 318,000 cases same date last year. By adding recent Government purchases to the June 1 figure, the total would be 453,411 cases. On July 1, 1940, Government agencies held 933,000 cases. From this it may be assumed that though June storaging this year is falling far below last year, this difference is more than covered by the decline in volume purchased by the Government, and holdings by commercial concerns are increasing at somewhere near the normal rate.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	June 1 5-Year Avg. 1936-40	June 1 1940	May 1 1941	June 1 1941	% Change June '40-June '41
		Thousands			
Shell Eggs (cases)	5,993	5,980	3,031	5,377**	–10.1
Frozen Eggs (lbs.)	119,942	123,793	99,531	142,103	+14.7
Frozen Case Equivalent (cases)*	3,427	3,537	2,844	4,060	+14.7
Total (cases)	9,420	9,517	5,875	9,437	– .9

* Frozen eggs are converted on the basis of 35 pounds to the case.

** Includes 415,055 cases owned by the Surplus Marketing Administration for relief distribution.

Poultry Meat Prices

Mid-Month Farm Prices of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3							

Live poultry markets were steady to firm, with price advances up to 1½ cents recorded. Fowl receipts continued light, with demand strong and prices generally 4 to 5 cents higher than prevailed during June last year. Receipts of young stocks were on the increase, though prices tended higher. On Eastern markets, most classes of young poultry were 1 to 2 cents under those of the same period last year, but at Chicago colored broilers were slightly higher. Receipts of all poultry at Central Western dressing plants ranged 20 to 35 per cent less than for the corresponding weeks last year. Young stock showed weekly increases of from 43 to 100 per cent. However, this was more than offset by declines of 32 to 47 per cent on fowl, which makes up the major portion of receipts at this season of the year. The favorable egg market has doubtless retarded the rate of marketing fowl. It is also reflected in efforts to increase laying flocks as noted in the 8 per cent increase of young chickens on farms June 1, as compared to the same date last year. Live turkey prices ranged 40 to 50 per cent higher than at this time last year.

Western fresh poultry was in firm position, with prices advancing 2 to 3 cents. On the other hand, iced poultry eased off ½ to 1 cent. Fresh turkeys, mostly breeders and old toms, held unchanged. Frozen poultry showed practically no change during June, while turkeys declined as much as 2½ cents on some classes. Receipts at the 4 markets were about equal to that of last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	June 1 5-Year Avg. 1936-40	June 1 1940	May 1 1941	June 1 1941	% Change June '40-June '41
		Thousand Pounds			
Broilers	5,219	3,635	4,458	4,291	+ 18.0
Fryers	3,851	2,163	5,967	4,274	+ 97.5
Roasters	9,561	6,199	17,980	14,014	+126.0
Fowls	10,142	11,821	17,971	14,933	+ 26.3
Turkeys	21,607	40,207	36,221	30,456	– 24.3
Ducks	2,381	2,252	1,664	3,580	+ 58.2
Miscellaneous	11,243	8,528	9,906	10,071	+ 18.0
Unclassified		2,099	6,962	5,808	+176.7
Total	64,004	76,904	101,129	87,427	+ 13.6

Hatchery Operations

The output of commercially hatched chicks during May reached a new high record for the month, the U. S. Department of Agriculture reports. The estimate shows an output of 222,419,000 chicks compared with 177,237,000 in May 1940 and the record high output of 197,426,000 in May 1939. The decrease from the peak output of April totaled 12,972,000 chicks. For the past three years, the decrease from April to May has averaged 46,453,000 chicks.

Substantial increases in output of chicks over May last year are shown in all regions of the country, the largest occurring in the Pacific Coast States where an increase of 56 per cent is indicated. The increase in the South Central States totaled 50 per cent. An increase of 35 per cent was shown in the South Atlantic States. In the East, the New England States showed an increase of 30 per cent, while the increase in the Middle Atlantic States was 10 per cent. A 27 per cent increase was shown in the Mountain States. In the East North Central States and West North Central States where three-fourths of the May chicks are normally produced, increases of 21 per cent and 25 per cent, respectively, were indicated.

The production of commercially hatched chicks for the first five months of this year shows an increase of 124,948,000 chicks or 19 per cent over the production of the same period last year. With the heavy hatching season about over, the production of commercially hatched chicks this year will undoubtedly set a new high record. By the end of June, it is estimated that production will be more than the total number produced during the twelve months of 1940. A considerable part of this year's increase, especially during the early part of the season, was for chicks for broiler production. This is evidenced by the fact that on June 1 only 8 per cent more young chickens were reported on farms than a year ago compared to a gain of 19 per cent in commercial hatchings. The increase over last year in the production of commercial broilers has probably been 30 per cent or more.

On the basis of Agricultural Marketing Service reports from crop correspondents, the increase in the number of young chickens in farm flocks during May was about 40 birds per flock, which was the largest increase during that month since 1936. Indications point to a further slight increase in the number of young chickens on farms through late hatchings.

Eggs Set by Commercial Hatcheries

Geographic Divisions	May 1938	May 1939	May 1940	May 1941	% chg. from May 1940	Jan.-May Inc. 1940	Jan.-May Inc. 1941	% chg. from 1940
			Thousands					
New England	5,891	7,313	7,877	11,894	+ 51	48,151	60,497	+26
Middle Atlantic	9,952	14,239	11,867	13,172	+ 11	92,565	100,500	+ 9
South Atlantic	9,932	11,175	12,167	17,034	+ 40	72,430	92,909	+28
E. N. Central	62,724	75,900	74,373	89,248	+ 20	316,385	362,215	+14
W. N. Central	67,010	76,933	73,514	113,947	+ 55	331,409	409,434	+24
South Central	7,291	9,581	8,401	18,230	+117	101,388	132,464	+31
Mountain	3,267	4,460	3,656	5,155	+ 41	21,935	25,961	+18
Pacific	5,616	7,184	4,848	8,678	+ 79	52,028	63,338	+22
U. S.	171,683	206,785	196,703	277,358	+ 41	1,036,291	1,247,318	+20

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	May 1938	May 1939	May 1940	May 1941	% chg. from May 1940	Jan.-May Inc. 1940	Jan.-May Inc. 1941	% chg. from 1940
			Thousands					
New England	5,331	5,745	5,118	6,653	+ 30	32,393	42,297	+31
Middle Atlantic	11,888	14,863	12,982	14,280	+ 10	58,553	65,334	+12
South Atlantic	8,885	10,323	10,912	14,731	+ 35	50,659	66,341	+31
E. N. Central	60,733	64,968	61,734	74,698	+ 21	189,883	219,163	+15
W. N. Central	67,682	79,736	69,145	86,431	+ 25	206,467	240,766	+17
South Central	8,992	10,796	10,314	15,471	+ 50	70,983	90,598	+28
Mountain	3,066	3,899	2,813	3,573	+ 27	13,070	15,304	+17
Pacific	4,499	7,096	4,219	6,582	+ 56	35,730	42,883	+20
U. S.	171,076	197,426	177,237	222,419	+ 26	657,738	782,686	+19

Hatcheries report a large increase in advance orders over that on June 1 last year—the increase amounting to 103 per cent. The demand for chicks early in June, however, varies widely among the hatcheries. Some establishments indicate that the demand for chicks has dropped sharply and that they have had considerable difficulty in disposing of chicks hatched late in May, while others are reporting a good demand and movement of chicks.

The outlook for the poultry industry for the remainder of the year is distinctly favorable and this may result in a fairly strong demand for chicks for egg production during the season when the demand is normally light.

The number of eggs set during May was 41 per cent larger than the number set in May last year. This increase being considerably larger than the 26 per cent increase in hatchings, gives added confirmation that the hatch in June will be a comparatively large one for that month. In appraising the effect of a large June hatch on the number of young chicks in farm flocks, it should be remembered that June hatches have always been relatively small compared with the hatches during March, April, and May, and consequently have little effect upon the total number of chickens on farms on July 1. Over two-thirds of the annual production of chicks is produced during the three months of March, April, and May, whereas only about 8 per cent has been produced in June.

The division between light and heavy breeds hatched in May showed practically no change from May last year. Approximately 37 per cent of the chicks hatched during the month were of the light breeds and 63 per cent were of the heavy breeds, compared with 36 per cent light breeds and 64 per cent heavy breeds hatched in May last year.

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked June 1	% Light Breed hatched		% Heavy breed hatched		Sexing
	% change from June 1, 1940	May 1940	May 1941	May 1940	May 1941	% change from May 1940
New England	+104	4	3	96	97	+ 67
Middle Atlantic	+ 50	45	40	55	60	+ 5
South Atlantic	+ 86	13	13	87	87	+440
E. N. Central	+ 46	32	30	68	70	+ 23
W. N. Central	+147	44	46	56	54	+ 45
South Central	+265	21	21	79	79	+ 70
Mountain	+226	39	40	61	60	+ 65
Pacific	+ 70	59	60	41	40	+105
U. S.	+103	37	36	63	64	+ 41

Egg Breaking Operations

Egg breaking operations during May were relatively high, the U. S. Department of Agriculture reports. The output in May is estimated by the Agricultural Marketing Service at 58,355,000 pounds, compared with 58,944,000 pounds in May 1940—a decrease of 1 per cent. Production in May last year was probably one of the largest for any month in the history of the industry.

The production of dried eggs during May was also large. Nine out of 11 firms believed to be operating during the month reported a production of 1,997,922 pounds of dried eggs. Reports from 7 firms that reported operations during May this year and last year showed a total production of 1,362,171 pounds compared with 742,808 pounds in May last year—an increase of 83 per cent. Reports on stocks were not complete from all firms. The firms reporting stocks showed that out of a total of 3,640,740 pounds on hand June 1, only 663,876 pounds remained unsold.

Egg breaking operations have been relatively high in relation to egg production so far this season, increasing approximately 15 per cent. Production of liquid eggs for the first five months is estimated at 167,034,000 pounds compared with 144,557,000 pounds during the same period last year.

Liquid Egg Production

		May 1940	May 1941	% change May '40-May '41
		Thousand pounds		
Whole eggs		14,264	13,830	– 3
Mixed eggs (plain)		1,827	2,276	+25
Mixed eggs (emulsions, also with sugar, salt, etc.)		8,901	11,729	+32
Egg whites (all descriptions)		17,894	17,019	– 5
Egg yolks packed	Without salt, sugar, etc.	3,713	4,318	+16
	With sugar	6,602	4,143	–37
	With salt	5,718	5,019	–12
	All yolk emulsions, including glycerine	25	21	–16
Total		58,944	58,355	– 1

Dried Egg Production

Commodity	Total Reported May 1941	Same Firm Comparison		
		May 1940	May 1941	% change May '40-May '41
	Pounds	Pounds		
Whole	385,031	10,860	94,481	+769
Albumen	369,031	171,671	220,922	+ 29
Yolks	1,243,476	560,277	1,046,768	+ 87
Total	1,997,922	742,808	1,362,171	+ 83
Plants reporting	9		7	

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NATIONAL
POULTRY DIGEST

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AUGUST 15, 1941

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Published by Everybodys Poultry Magazine
Publishing Co., Inc., Hanover, Pa.

News of British Poultrymen

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The British poultry publications, however, continue to come through, sometimes issues of two weeks in the same mail, probably because of shipping delays, but they come anyway. Judged by pre-war standards, they are somewhat anemic in lack of advertising, but they are still serving a poultry industry greatly curtailed because of reduced feed supplies.

We have followed these publications with interest. Believing that the struggles of British poultry raisers in meeting the conditions imposed upon them by war will be of interest to many DIGEST readers, some of the facts gleaned from their publications over a period of six months are presented in the article appearing on page 11.

Change in Laying Test Tables

Many of our readers probably noticed the omission in July of the monthly "Results of Laying Tests," a department which has appeared regularly since the POULTRY DIGEST was launched.

The decision to discontinue this department was reached after getting the opinions of a number of breeder-readers whose entries have stood high in the laying test competition. They agreed that, while the DIGEST tabulations were most complete, these tables could be omitted because of the publication of almost the same information about three weeks earlier in Everybodys Poultry Magazine, Poultry Tribune, and the American Poultry Journal. Since considerable time was required in compiling the material, and since tabular composition is costly, it was concluded that the space might be used to better advantage.

Two protests have been received over the dropping of this feature. Perhaps others think likewise. We would like to know. Write us, please, if you would wish to have the monthly tabulations of laying tests restored. The complete annual summary of laying test results will appear in the November issue as usual.

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POULTRY DIGEST

Published on the 15th of each month at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Roland C. Hartman, editor and mgr.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas.; Paul F. Worcester, assoc. editor. Single copies, 25 cents. Back copies, 40 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Binder holding 12 copies, $1.25 postpaid in U.S.A. Entered as second-class matter Jan. 20, 1939, at the post office at Hanover, Pa., under the act of March 3, 1879.

Vol. 3, No. 32 August 15, 1941

Eggs in Nutrition For Defense

By M. L. WILSON

Director of Extension Work

U. S. Department of Agriculture

Excerpts from a Talk

MORE than a thousand years ago, country people paid their taxes by supplying kings and potentates with eggs. But eggs remained a delicacy until some 50 years ago. Then American production methods began to make them available to the common people. Reasonable cost of production has now made eggs a part of every well-balanced diet.

The emphasis under the nutrition-for-defense and food-for-defense programs will be on the protective foods. Nutritional research has proved that eggs are both rich in food elements and protective qualities and low in heat production. They are an important source of several of the essential vitamins and minerals. The yolk contains vitamins A, B1 (thiamin), D, E, G (riboflavin); nicotinic acid (the pellagra-preventing factor), and small quantities of vitamin K (the anti-hemorrhagic factor). The white of eggs also contains some riboflavin.

More Egg Publicity Needed

These vitamin qualities of eggs have, of course, been publicized to some extent. The national nutrition program offers the poultry industry the opportunity to emphasize them

From a talk presented at I. B. C. A. Convention, Kansas City, Mo., July 23, 1941

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From a talk presented at I. B. C. A. Convention, Kansas City, Mo., July 23, 1941

INTENTIONAL 2ND EXPOSURE

even more. This can be done without exaggeration. In some respects, I feel egg publicity has fallen short of getting across justifiable claims. Poultry authorities tell me, for instance, that eggs are rich in vitamin D and constitute practically the only farm commodity which can lay claim to being a source of this important vitamin. Eggs also include the important minerals iron, calcium, and phosphorous. An important contribution of the poultry industry to the national nutrition program would be to place greater emphasis on these points. Articles in poultry and farm publications, in hatchery letters, in the newspapers, as well as radio talks, could help to stimulate a public nutrition consciousness by emphasizing the importance of eggs in a balanced diet.

In the present emergency, egg production has a two-fold incentive. On April 3, the Secretary of Agriculture announced the food-for-defense program. The food-for-defense program and the national nutrition program constitute the American food-policy of the present emergency.

Food Policy Objectives

The combined programs have a two-fold objective. The first is to strengthen our national defense by making Americans stronger. This is to be done by improving the dietary status of our people and by taking such action as is necessary to improve the distribution of the protective foods among those groups of our people who find themselves economically unable to produce or purchase them. The other part of the food-for-defense program is to furnish all the protective foods possible to the people of Great Britain, under the provisions of the policy established in the Lease-Lend Act.

With respect to food for Britain, we must keep in mind that sending needed food to the British Isles can become even more important than sending planes and guns and tanks. We must not forget that despite the many air attacks made on British industry, industry in Britain is going ahead full blast. But industrial production at the rate required by the British makes great demands on labor and man-power. To keep labor and morale going in Britain, it will be necessary to keep dietary levels reasonably high. This requires protective foods. And it is desirable to have these protective foods in concentrated form, such as cheese, evaporated milk, dried eggs, and the like, to permit getting them across the Atlantic in a minimum amount of shipping space.

The food-for-defense program provides for the long-time support of commodities falling into the nutritional classification of protective foods. The aim is to encourage farmers to convert food from grain in the bin and forage in the field to meat on the hoof, energy in cheese, and vitamins and minerals in the shell.

Government Supports Prices

That the Government has been able to carry on price-supporting and buying operations successfully is demonstrated in the fact that wholesale egg prices are now about 9 cents higher than a year ago and about 5 cents higher than in April when the program was announced.

Administratively, the food-for-defense program operates this way. The Department of Agriculture is authorized by law to purchase agricultural commodities. It does so for four main purposes: (1) Release for school lunches and domestic relief needs; (2) use by the American Red Cross; (3) shipment to England under the Lend-Lease Act; and (4) stabilizing reserves to insure an ever-normal food supply. Through the food-for-defense program, therefore, the Government has been able to give egg-producers a long-time guarantee of prices without resorting to price-fixing measures and without increases to consumers.

Future Aid Guaranteed

The question has come up recently in the dairy industry, as well as in the poultry industry, whether the Government can give guarantees to farmers who will step up their production to meet the food-for-defense needs. You may rest assured that the Government fully recognizes its responsibility to farmers. If at a future time the European needs for poultry and dairy products should disappear, or if an increased price-depressing surplus should result from the increase now being asked, the Government will stand behind the farmer. Keep in mind, however, that the Department has cautioned and is continuing to caution farmers against investing borrowed money to increase greatly their poultry facilities on the strength of an expected long-time demand for eggs abroad.

Produce More Eggs—And Hold the Quality

Have you, as a poultry producer, been anxious to try out a brood of fall hatched chicks? If you have the house room for more pullets, this is a good year to satisfy that curiosity. Be sure you use a strain that is bred for egg production. The present emergency demand is for eggs, not broilers. The egg-feed ratio has shown a much more favorable gain during the past few months than the poultry-feed ratio.

Have you ever visited the candling room of a modern packing plant and seen the thousands upon thousands of eggs that are thrown away because they are rotten? Eggs are a perishable product, in spite of their shell. Eggs are worth money—think how some of those hungry people in foreign countries would appreciate those eggs, if they were edible. The hen does her duty and lays a good egg. If it's not good when it reaches the candling room or consumer, it's somebody's fault.

A bad egg is just a good egg gone wrong, and it's up to every producer and handler to see that his eggs can't go wrong.

—Excerpts from a talk by H. L. Shrader, U. S. D. A. Extension Service, at I. B. C. A. Convention, July 25, 1941.

The Poultry Industry and National Defense

The ability of the poultry industry to weather what is ahead will depend upon the intelligent interest, the spirit of cooperation, the hard work, the devotion to their country and industry, and even the sacrifice, that leaders of the various branches of the industry are willing to give to the general good of the industry.

We must produce the needs of our own people and, in addition, help to feel the deficits for the democracies fighting aggression in a manner that will not upset our apple cart in the post-war period. Thus, today, we have a job looking into tomorrow.

The industry, with the cooperation of Federal and State agencies, in consideration of the uncertainty of the future, should leave no stone unturned; to do today, whatever it is possible to do; to cushion and ease the economic impacts which will follow the war when the stimulants of the defense program are withdrawn.

We of the United States Department of Agriculture are trying to give these problems consideration. That is why we have said that poultrymen do not need to build new houses and invest in new facilities, since present capacities are ample. If additional facilities are needed, they should be on a temporary basis, the type of houses which can be torn down without any great financial loss, and in fact, the type of houses which would more than pay for themselves in even one year's use.

Poultrymen should do all they can through an entity such as the National Poultry and Egg Board to discover and develop new sources of business and keep the people of this country poultry and egg-conscious.

—Excerpt from a talk by W. D. Termohlen, U. S. D. A. Surplus Marketing Administration, at I. B. C. A. Convention, Kansas City, Mo., July 25, 1941.

War-Time Poultry Keeping in Canada

We have in Canada a growing industry in poultry, fostered by R. O. P. work, through the Dominion Poultry Promotion Department of Canada and the Egg Laying Contests, through very definite grading regulations with an eye on Empire markets, and with a very definite Hatchery Improvement Policy which has been adopted by six of the nine provinces so that only chicks produced under the Dominion Hatchery Approval Policy are sold to the chick buying public in these Provinces.

All these definite programs have had their share in making Canada ready at a moment's notice to go into the production of more chicks, poultry and eggs, if and when a satisfactory market becomes available. Along with this planning, there has always been a feeling on the part of the leaders of the industry that anything that was done should not be done for today only, but that they try to see into the future, which of course, is a very difficult thing to do.

It has been part of our endeavor to build the poultry industry in such a way that we would have some export for Britain when she required it, but also that the producer at home would have a reasonably satisfactory return for his labors.

I wonder if we would be able to take thought of what the future may hold. Will the American people be able to consume the extra 15 per cent of poultry products that you are talking about producing, or will you have got a number of producers into the habit of raising poultry and then leave them high and dry without a market?

It is true that the immediate future looks like good markets, but what are you going to take in exchange for money? Is your Government going to buy the extra poultry? Are they going to give it to the starving poor of Europe? If so, as a taxpayer, you are going to be paying for your own product.

These are things that I feel both your country and ours should consider when they talk of increased production away above our maximum national consumption.

—Excerpt from a talk by Fred Bray, Hamilton, Canada, at I. B. C. A. Convention, July 22, 1941.

LAST year Paul Holcombe, Mt. Airy, N. J., made a barrel of lawn clippings into silage for his chickens, but used honey in place of molasses. Mr. Holcombe is a honey producer and by using a home product was able to save the purchase of molasses for this purpose. The result proved satisfactory.

—New Jersey Farm and Garden, July, 1941.

Army Poultry and Egg Purchases Under the New Procurement Plan

By JOHN A. MARTIN

Office of Production Management

Condensed from a Talk

THE old adage which says that a soldier fights on his stomach was never more true than today. The finest airplanes and the most effective mechanized equipment would be of no avail if the science of human nutrition and food engineering had not kept pace with the development of military technique. For example, it is well known that night blindness, caused by a diet deficient in vitamin A, transforms the most skillful air pilot from an all-important military asset to a dangerous menace to the lives and property of the very ones he aims to serve.

Army Men Need Eggs

The importance of eggs in the Army diet has been recognized and carefully considered. The presence of vitamin A, Thiamine, Riboflavin, Nicotinic acid, vitamin D, protein, calcium, iron and phosphorus, the palatability of eggs, their adaptability to many ways of easy preparation, their importance in cookery generally, and their delivery in self-sealed individually-wrapped sanitary packages have all been considered.

We are gratified, therefore, to know that eggs are served frequently. In a sample menu, there is suggested for one week the use of eggs in six out of seven breakfasts, as fried, scrambled, soft cooked, omelet, and French toast; in three dinners as part of puddings, and twice as supper dishes.

Modernizing Army Buying

Under the old garrison ration system, each mess sergeant was permitted to requisition (within fairly broad limits) nearly any food he wished so long as he kept within his budget. For the new and inexperienced mess sergeants of the rapidly expanding Army, it was a problem in balancing the budget rather than a question of balancing the diet. There might be as many as 150 different menus in a camp of 25,000 men at any given meal.

The Quartermaster Corps and civilian experts recognized the difficulties. To overcome them and make available to the soldiers at all times the accumulated and tested knowledge of nutrition experts, it was arranged that each mess sergeant on a given post be required to follow identical menus prescribed by the Post or Corps Area Commander.

Under this plan, which is known as the modified field ration system, the mess sergeant is no longer concerned about the cost. He simply requisitions the proper amount of food, of the several kinds prescribed, to take care of his men. He is free now to put all his energy and time into its preparation and serving. As they say in Army parlance, the ration is issued in "kind" instead of in "money."

Thus, it came about that the modified field ration system was made effective on May 1 in all camps with 2,000 men and over.

This is truly an epoch-making step in Army feeding. I cannot sufficiently stress its significance.

"Market Center" Plan

To make it effective and to bring it to full fruition, a radical change was necessary in the buying program. After long and careful thought, the Quartermaster Corps and its civilian advisors agreed that because of their importance in the ration, many, if not all, of the perishable foods should be procured and distributed under a plan which would adapt to Army use the best elements from tested and proved purchasing procedure as developed in successful commercial practice. Further, the plan would provide the trained and experienced personnel necessary to its fulfillment, and assure to camps and to the Army on maneuvers, an uninterrupted flow of supplies, of the proper quality at reasonable prices.

For a unit such as the Quartermaster Corps, charged with the procurement of vast quantities of supplies, it was logical to agree that the buying program should be one patterned after that developed in the modern department and chain store. It should be capable of purchasing at wholesale and distributing at retail, over a wide area, yet meeting the requirements of Army rules and regulations, and assuring maximum benefits both to soldier and producer.

The Market Center Plan was devised to accomplish this purpose. On May 1, it was inaugurated simultaneously with the launching of the modified field ration system.

Advantages of New Plan

Functioning since that date on fresh fruits and vegetables through its 29 offices, the Market Center Plan has more than justified our expectations. For the Army, it is an innovation, and differs materially from the former method of procurement. No longer do we have the old uncoordinated system whereby camps were bidding against each other. This condition caused sharp market fluctuations, sometimes raising the market for civilian

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Talk presented for Mr. Martin by Lieut. James E. Gwin at the International Baby Chick Association Convention, Kansas City, Mo., July 23, 1941 purchasers, and then again causing drastic declines when gluts occurred after expected Army business did not materialize. Prices are now generally lower, grade for grade, and quality of deliveries has been materially higher. The use of fresh fruits and vegetables has been greatly extended and the quantity increased.

On July 1, the Market Center Plan was extended to include poultry, eggs, butter and cheese in the Fifth and Sixth Corps Areas. Posts in these areas are now being supplied through the Market Center offices at Chicago and Louisville. The plan will be expanded on these items to include the entire nine Corps Areas by August 1 or September 1.

Coordinating Purchases

At that time, each of the 29 Market Center offices will be in constant touch with Chicago Headquarters by teletype. Each office will pass along to Chicago information as to the quantities required and delivery dates desired at the respective camps which it serves, together with information as to local supplies and prices. At the same time, each Market Center will receive by teletype, information from the Chicago headquarters office as to conditions of supply and demand in every large terminal market and producing section. In other words, there will be a continuous interchange of market information and the 29 regional offices will be completely coordinated with headquarters.

Although all purchasing will be coordinated and controlled through the central headquarters at Chicago, local supplies will be purchased from time to time by market centers other than Chicago. Where higher prices are asked locally by reason of insufficient local production or by reason of additional market channels through which the supplies must pass, buying will be done by the Market Specialists at the Chicago headquarters Market Center as close to the source of production as possible.

Benefits to Producers

Whether performed locally or through Chicago, whether from small suppliers or large, the buying will follow as closely as feasible the most direct channel of distribution, so as to give the producer the highest possible portion of the price paid by the Army. Since most large Army posts are located in deficit-producing areas for these commodities, it is estimated that perhaps 70 to 75 per cent of the total quantity of poultry and eggs will be purchased in truckloads and carlots in the surplus producing areas in the Middlewest.

Although still under the Army rules and regulations of the Quartermaster Corps, the Market Center plan provides for greater elasticity and adaptability to market conditions. Purchases are made daily, in the open market, and according to grade and Army specifications. There is a minimum of disturbance to civilian markets. Suppliers like it better, although the prices are lower than under the previous system of indefinite quantity contracts for 30-day periods. Recent surveys have indicated that suppliers in the past have inflated their bids by 10 per cent over normal expectations in price because they had to speculate on market fluctuations. Suppliers like it better too, because in most cases inspection is now made at the source, before the transaction is consummated, and although they understand that the sale is f.o.b. destination, they feel confident that the merchandise will be accepted if its condition is satisfactory.

Prevents Rejections

Our soldiers like this arrangement also because undesirable merchandise is weeded out at the source by expert civilian or Federal Inspectors. Substitution of sizes, grades, and qualities is eliminated before shipment. Under the old system, undesirable merchandise might arrive at camp with too little time for replacement and its rejection meant disappointment or substitution.

Suppliers who previously have not considered Army business are now anxious to sell through the Market Centers. Beside the reasons already enumerated, they like the new plan because it facilitates payment in seven to ten days compared with an average of 30 to 45 days under the old system.

How Purchases Are Made

For those of you who are desirous of selling to the Army direct, let me explain that each Market Center is in charge of a commissioned officer of the Quartermaster Corps, who does the purchasing and executes the necessary documents. He functions directly under the control of the Quartermaster General's office. The commissioned officer is advised by an experienced civilian, who is qualified to buy poultry, eggs, butter, and cheese, and who is classed as a Marketing Specialist under Civil Service.

Purchases are made on a competitive bid basis and awards are made to the lowest responsible bidder. Bids may be requested and awards made within a few hours on a verbal basis, followed by written confirmation. Although the regional buying office (Market Center) makes the purchase, delivery must be made to the Quartermasters at the respective camps.

I suggest you familiarize yourselves with the location of the Market Center office nearest to you, or those with whom you desire to do business. Get acquainted with the commissioned officer in charge and the civilian expert, where one has been assigned. Find out what grades and volume are needed, type of packaging, and delivery dates. Don't wait for the government buyer to come to you. Take the initiative yourself, because he may have many prospects to contact.

If the specifications seem rigid, remember that they are formulated for many camps, large and small and some shipments may have to undergo long hauls and difficult transport. Eggs must all be candled to a retail grade.

4,500,000 Meals a Day

The very size and importance of the Army feeding program are challenging. At present about 1,500,000 soldiers in camps are depending on the procurement facilities for breakfast, dinner, and supper every day, seven days a week. There can be no breakdown. The men must eat. This body of men scattered in some 270 posts all over the United States represents the equivalent of ten cities the size of Salt Lake City or Bridgeport, Connecticut, or the entire population of the State of Washington.

The daily food bill for these men is running at the rate of about $700,000, of which perishables account for more than half. Poultry and eggs alone amount to a tidy sum. The suggested menu calls for over 4,000 cases of eggs for each day's use—an egg per day per man—which cost approximately $40,000. If poultry is used in the quantities called for, it would be the weekly equivalent of nearly 2,000,000 pounds (1¼ pounds per man, served once each week) at a cost of about $500,000. In actual practice, the quantity consumed during June in some 20 camps surveyed at random in seven of the nine Corps Areas has been above the suggested rate for eggs, whereas poultry has been somewhat less than the suggested rate.

Comparison of quantity consumed by our soldiers and the members of their families at home is interesting. The consumption of eggs for June in these 20 camps was 35 per man. This exceeds civilian use by nearly 50 per cent. The corresponding figure for poultry was 2.4 pounds per man. This far exceeds civilian use.

Soldiers Eat Better Meals

The soldiers' meals are better balanced, more nourishing, tastier, more appealing, and generally more satisfactory than those which they had at home. The average gain in weight by the new recruit for the first month is reported to be ten pounds.

Incidentally, there should be a substantial social gain in applied nutrition when these soldiers return to their homes, taking with them a newly acquired taste for protective foods such as eggs.

Poultry Raising in Britain Under War-Time Conditions

By PAUL F. WORCESTER

HIGH-FLYING planes drop charges which destroy homes, buildings, and stock; poultry is fed on housescraps and damaged grain; maximum price orders regulate the sale of eggs—that's war-time poultry-keeping in England.

In the two years since the war began, English poultrymen have had to learn poultry keeping all over again, for nearly every phase of management has been changed by war conditions. Reading English poultry publications is disheartening and discouraging. Yet the men who tend England's poultry flocks seem to be neither discouraged nor disheartened. Instead, they do the best they can with what they have, work, through their organizations, for more feed and higher egg and poultry prices, and speak of how things will be when peace comes.

Week by week, "Eggs" (Modern Poultry Keeping) and "Feathered World and Poultry Farmer" make their way from bomb-damaged printing plants in London, across mine-infested waters, to bring American readers their story of optimism, perserverance, and determination. The material here has been gleaned from several issues of these two great poultry publications. Offices of both magazines have been damaged by bombs, but with no more than inconspicuous mention of the damage, both periodicals have continued to appear regularly, and are carrying on their job of helping readers to meet the difficulties.

It is interesting to note that the editors seem to be free to publish what they will in criticism of government policy affecting their industry. Evidently, war-time censorship is not applied to internal affairs other than those the discussion of which might be of aid to the enemy.

War-Time Feeding

Steaming, pressure-cooking, and boiling of housescraps is the order of the day for English poultrymen. A few large cities have instituted municipal collection systems and are processing the waste into "pudding" or meal. Waste from London households is gathered, cooked, and sold as "Tottenham pudding" in hundred pound molds. Says Feathered World, "It is not a perfect battery food, because, although it is roughly sorted, it contains occasional bones, cabbage-stalks and even knives and forks."

The waste food board is now contemplating putting an improved product on the market. It will consist of cooked housescraps dried off with sawdust and sifted to remove any small indigestible material.

A ration mixed by one poultryman is made up of 72 per cent Tottenham pudding, 20 per cent layer's mash (rationed on the basis of the number of birds owned), 7 per cent pine sawdust, and 1 quart of cod liver oil per 100 pounds of the mixture. Over 2,000 caged layers are being fed this mash, getting 5 ounces daily per bird, and Jack Biss, the owner, claims production to be better than before the war.

Meal from Refuse

Waste collected at Aberdeen is processed by a milling firm into a meal. An approximate analysis of the finished product, according to Feathered World, is: Oil or fat, 8 per cent; protein, 17 per cent; fibre, 8 per cent; moisture, 10 per cent; ash, 12 per cent; soluble carbohydrates, 45 per cent.

The product of these municipal plants is sufficient for few poultrymen, however, and until the proposed nation-wide collection and processing of waste is complete, individual poultrymen must prepare their own feed, using their utmost ingenuity in stretching the meagerly rationed "balancer" meal to make the greatest quantity of waste palatable and nutritious.

Waste Gathering Routes

Neighborhood cooperation is necessary to provide the housescraps in many cases. Some poultrymen have established routes, and gather waste on regular days from householders, hospitals, army camps, and municipal kitchens. Every conceivable manner of cooking and processing is employed. A recent ruling requires all feeders to boil kitchen waste for at least an hour to prevent spread of disease, so cooking is the first step. After that may come pelleting, drying (by sun or artificial means), or immediate feeding as a wet mash. Directions for making "fudge" corn, are offered by H. Jakes of Gamlingay.

"Take an ordinary round tin, punch several ¼-inch holes in the bottom of the tin.

"Fit a piece of wood, 12 inches long, the same diameter as the tin. This will act as a handle to push the food through the holes at the bottom of the tin.

"The pellet-maker is now ready to take the food. Fill the tin half-full with the food, push this food through the holes ⅜-inch; then cut off with a knife.

"Continue this operation until enough pellets are required; bake in the kitchen oven until hard and crisp.

"I find this a good substitute for corn as scratch food."

The mixture made into pellets by Mr. Jakes consists of 50 per cent ordinary mash and 50 per cent cooked garden vegetables.

More complicated is the preparation of "chiscuits," another combination of waste products and rationed foods. This meal is prepared for chicks by poultrymen using battery brooders, has given good results, and is "eagerly devoured by young chicks."

Home-Mixed "Chiscuits"

"Chiscuits" are prepared by mixing fish or meat offal, mashed potatoes, maize meal, bran, and weatings, cod-liver oil, mineral mixture, and charcoal, rolling the resultant paste out to ⅜ inch thickness, cutting it into squares which will fit a baking tin, and dried in a moderate oven. The cooked biscuit is put through a food chopper and fed in small granules.

Numerous other systems, such as mixing shredded vegetables with the balancer mash; boiling blood collected from slaughter houses and mixing it with stale bread and meal; feeding nettles, either fresh or dried; and making "custards" of incubator "clear" eggs all have their enthusiastic backers. Evidently, good results are being obtained from these emergency rations, as one producer had 3½-pound birds at 12 weeks, which is excellent growth on any ration.

Food economy is essential. More frequent feeding, putting less feed in hoppers, various types of "no-waste" feeders, and reclaiming spilled feed are being emphasized by the poultry papers as necessities. Eggs carries the following account of super-economy, as practiced by poultryman Eric Savage of Albury.

"The feeding troughs are flushed daily, the effluent being carried by pipes through the floor into spouts. A bag at the end of the spouts gathers the meal, and this is collected daily and dried off, using a little more of the ordinary mash.

"In this way, sufficient food is obtained to give every bird in its cage one feed of wet mash per week."

Blackout for Poultry Houses

Obtaining food is but one of the problems in war-time poultrykeeping. Regulations require blackout screens to be put over all windows, so that aerial raiders will have no spot of light to use as a target. Lily Peake, a Pogmore poultry-keeper was "fined two pounds for having an unshielded light in a hen-cabin," says Eggs.

Surprisingly, exploding bombs do not seem to affect production to any great extent. Soft shelled eggs may be laid for a day or two, and, in some instances, a premature molt may result after a bombing, but bombs dropping in the vicinity of a hen house seldom discourages hens, according to reports.

"A correspondent in the Telegraph writes: 'My neighbor in the country keeps half a dozen hens. The other night a bomb blew them out of the hen-house. Next day their combs were seen to have turned pale with shock. A couple of days later, however, they laid six eggs and have continued a high rate of production ever since'," says an item in Eggs for July 2.

The housing problem is not as acute as might be expected for, even with a shortage of new lumber, "blitzed" wood (material from bombed-damaged buildings) seems to be readily available and can be pieced together for emergency repairs and construction.

Egg Prices Fixed

If the English poultryman is fortunate enough to be missed by "Jerry," as they none-too-affectionately term the invader, and if he gets enough feed to supply his hens, his next problem is to sell the product. With an acute shortage of eggs, that would seem simple enough, but food administrators have decreed that all eggs must be pooled so that each person may have his fair share. Prices are rigidly fixed. If less than 50 birds are owned, eggs may be sold to anyone, but at a fixed price. A poultryman with over 50 birds, however, must sell all the eggs not consumed in his household to government-subsidized packing stations.

So that more eggs will be sold to the packing stations, thus enabling the government to control the distribution of a greater percentage of the total production, the prices paid to producers by authorized buyers or packers will be higher than the retail price. The government will make up the difference, and will release eggs at a lower price than that at which they were purchased from the producer. Actual egg rationing has not started as yet, but indications point to some move along this line by autumn.

Eggs 52 to 70 Cents a Dozen

During the week of June 27, maximum prices to the farmer were fixed at about 70 cents a dozen for eggs grading special, 64 cents for standards, 58 cents for mediums, and 52 cents for seconds. Retail prices were 60 cents a dozen for specials, standards, and best quality imported eggs, and 54 cents a dozen for seconds and lower grades of imported eggs. Roasting chickens, boiling fowl, geese, and ducks were bringing the farmer about 36 cents a pound, with the consumer paying 44 cents. These figures are based on the pre-war standard of one shilling being equal to approximately 24 cents.

"Balancer" meal was selling at 18 shillings ($4.38) per hundred, oats sold at the same price, reconditioned wheat cost $3.77 per hundred, and

corn $3.10. Standard summer laying mash cost $3.83, and growing mash was the same.

All chickens, ducks, and geese have the same fixed maximum price for each step in marketing. Wholesalers may pay no more than 1 shilling 6 pence; retailers pay a maximum of 1 shilling 7 pence, and consumers pay no more than 1 shilling 10 pence. No additional charge may be paid for killing, plucking, cleaning, or packing.

At the start of price fixing, many schemes for getting more than the maximum price were tried. Some retailers made a charge for the bag. Others made the purchase of eggs and poultry contingent on the purchase of some commodity on which the price was not fixed, and then charged exhorbitant prices for the second purchase. More than 30 different price orders have been issued since the start of the war, many poultrymen find it hard to keep up, and thus run afoul of the law for selling eggs at more than the current fixed price.

"Car-crawl for Eggs"

The "car-crawl for eggs" is reported to be a regular thing in Scotland, as city folk with a little gasoline to spare scour the countryside for eggs. This hunting out of eggs by individuals has seriously handicapped dealers, who find that customers are only too willing to sell their eggs at retail rather than hold them for a weekly gathering by a wholesaler.

Gull Eggs Collected

Gulls' eggs are being collected by people living along the coast and on the small islands. They are used for general cooking, scrambling, poaching, and boiling, and are reported to be "delicious, and more satisfying than hens' eggs."

The keeping of bantams is advocated, as they take less feed, require less housing space, and will lay a greater weight of eggs per unit of feed, says Feathered World for May 2.

Standard poultry equipment these days consists not only of feeders, waterers, and the like, but such contrivances as food choppers, pressure cookers, out-door stoves, black-out shields, and grass drying boards or tins must be on the list.

Increased poultry-keeping by boarding schools, hospitals, and other organizations does not seem to disturb commercial poultrymen until these "back-yarders" begin to get a cut of the rationed "balancer" meal.

Hatching Eggs Marked

Eggs sold for hatching purposes must be stamped in red with an "H" by the producer, after which they can be sold at advanced prices. The buyer of the eggs must furnish the breeder with a declaration that the purchases are for hatching, and the breeder must keep records specifying the names of the buyers, quantity of eggs bought, and date of sale.

During a tour of bombed areas, Mrs. Winston Churchill asked what was on the menu for lunch at a school where 150 homeless people are living. She was told that the principal item was "bombed chicken." Birds killed in air raids had been donated to the school by poultry farmers.

Free Expression of Opinion

To those of us who have heard much of press censorship, it seems remarkable that poultry publications in the United Kingdom seem free to voice objections to government rulings.

One poultryman writes:

> "I am rationed for 36 birds with 108 pounds per month; my friend is rationed for 10 birds with 56 pounds a month. I complained to the Ministry, but the only sense I could get from them is that whereas the under-12-bird man is rationed with 4 pounds per bird per month, the 13 to 50-bird man is only to receive 3 pounds per bird per month. All I can say is they want to go back to school, as I always thought ten fours were forty, not fifty-six.
>
> "Do you call that fair rationing? I don't."

Another common complaint is against the reduction of egg prices while feed prices have more than doubled since the war began. The Ministry of Food is criticized on all sides. Poultrymen object to the fact that race horses get 16 pounds of oats a day, pointing out that horse racing does little to help defeat Germany, and that the grain consumed by horses would produce many eggs.

A table prepared by an irate poultryman points out that the present egg production is but 13 per cent of pre-war. Reductions of flock to 1/3 normal numbers, a bad winter, and bad food have been responsible for the cut. "These 13 eggs represent the peacetime 100, and yet the Ministry of Food makes itself so ridiculous as to fix values. Believe me," says the writer, "they are beyond price."

English Humor Ever Present

But in spite of all the problems, English humor is well in evidence in each issue of the publications, though the humor sometimes has a caustic note. A popular cartoonist recently depicted a poultrywoman telling a companion, "Yes, we feed them on soap-flakes—they lay marvelous shampoos," which, says Eggs, was a cut at the beauty parlors, where four eggs are used for each hair shampoo.

Another writer says that folks who complain that the shortage of eggs is due to dealers making the rounds of farm houses and offering more than the maxmium price allows are wrong, and that "The shortage of eggs is really due to egg shortage."

According to Eggs, people line up while eggs are being collected on farms so that they may obtain theirs without having to stand in an even longer line at a store in town. This, of course, will be eliminated on all farms carrying more than 50 hens under the new ruling.

Some English poultrymen are criticizing the government's policy of importing eggs instead of grain. They argue that imported grain could be combined with waste to make a mash, and thus domestic production of eggs and table poultry could be greatly increased. Until grain for meal is available in larger supplies, however, many poultrymen are being forced to cut their flocks to even smaller numbers and, as says the editor of Eggs, "Waste is still going to waste."

Looking to the Future

Even while the feed problem gets more acute and marketing gets more complicated, greatest concern seems to be for the future. Many advertisers, even those who manufacture feed in peace-time, continue to carry their messages to poultrymen. One recent advertisement said "Bear Superbra In Mind for 'After the Victory'," which denotes the feeling of optimism, courage, and confidence which runs through all the news of English poultry-keepers.

Reduce Your Indebtedness

While you poultrymen willingly respond to the urgent call issued in this national emergency and provide ample supplies here and abroad, surely you will not over-expand plant and equipment, and, most important of all, you will watch the indebtedness angle of your business. Let me suggest this is a good time to reduce debts and acquire a greater equity in your outfit. Of course, all will continue to cut operating costs wherever and whenever possible. I appreciate how difficult that is to do just now. Efficiency of operation, plus high quality, will provide good anchors in time of panicky markets and will take a lot of wind out of inflation's sails.

—Excerpts from a talk by C. B. Denman, I. B. C. A. Convention, Kansas City, Mo., July, 1941.

KING SOLOMON enjoyed his poultry, for among his daily provisions "fatted fowls" were included.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, July, 1941.

Obtaining Equipment for Production Increases

On April 16, 1941, the Secretary of Agriculture announced that, in order to assure ample food supplies for our own country, for Great Britain, and for other nations resisting aggression, egg production must be increased over a 15 month period by six per cent. This represents 10 million cases of 30 dozen eggs each. While the poultry and hatchery industry have responded nobly to this request, production of eggs needed to meet the Secretary's requirements is not yet sufficient.

But how can we produce the birds to do this job without necessary supplies? I think the answer is obvious. We simply can't do it.

Today there is no aluminum available for any non-military use. We have been fighting to get aluminum for leg and wing bands for six months. The same is true of aluminum for incubators and paint.

I have real hopes that the Department of Agriculture will be able to do something for us in this situation. Certainly they have tried and are continuing to try to do so.

If "Food will win the War" our need for materials is as important, if not more important, than some of the so-called defense industries.

—Excerpts from a talk by Donald Kane, I. B. C. A. Convention, Kansas City, Mo., July 22, 1941.

Turkey Stud Mating Pen

In place of turning the toms in with the hens, each tom on the farm of Mr. and Mrs. Geo. Huckaby, Riverside County, Calif., has a stud pen made of laths spaced a foot apart. The pens are 8 feet square. Spacing the laths a foot apart gives the hens room to walk in or out, and yet confines the toms. A piece of lath is tied across the shoulders of the tom to prevent him from going out, since he cannot pull the lath through the fence openings.

The stud pens are set in a double row in each breeding yard, confining the toms, yet giving the hens the run of the yard. They are made of sections, each side being a section, for convenience in removing at times of turning the soil. The sections are held together by using screen door hooks. Each pen has running water, mash, alfalfa, and shade, and is arranged for the convenience of the caretaker.

The advantages of the stud pens are first, greater fertility, since any hen in the yard may at any time mate with the tom of her choice. Also, it saves changing toms each day. The toms cannot fight.

—V. O. Hansen, California Cultivator, July 12, 1941.

Turkey Poults With Bad Habits

By T. T. MILBY
Oklahoma A. & M. College

Reprinted from Feedstuffs

IN some ways, the brooding of turkey poults is a lot like raising children. Whether things go smoothly or not depends on the formation of certain habits. If good habits are formed, we don't have much trouble, but if the habits are bad, we are in for grief.

One of the worst habits turkey poults can acquire is that of crowding together and piling up. Why do they do it? Turkey poults may crowd because they are cold, and huddle together for warmth; they may crowd into a corner of the brooder house to get away from excessive heat; or they may stampede and crowd together because they are frightened. Once this habit is established, they may crowd for no apparent reason at all.

Help Establish Good Habits

If we are going to prevent losses from "piling up," we must make it easy for the poults to establish good habits of eating and sleeping. Keep the brooder temperature uniform, reducing it as the poults get older. At night the poults will form a loose ring around the stove just outside the edge of the hover if the temperature is correct. Round out the corners of the brooder house with poultry netting so poults can't pile up right in the corner. Provide low roosts and encourage poults to roost at an early age. In mild weather they should all be roosting by 4 or 5 weeks of age. Avoid frightening the poults by loud and strange noises or sudden movements.

Many people have recommended the use of a dim light at night to prevent crowding and other bad habits among the poults. The poultry department of the Oklahoma A. & M. College tried all-night lights for starting poults four years in succession, using electric, gas and wood-burning brooders. Two years out of the four, there was no difference in growth or number of poults lost. One year the group without lights suffered heavier losses from chilling, but not from crowding. The fourth year one group of poults piled up in the pen with all-night lights. The use of all-night lights is not a cure-all.

Cannibalism Control

The second serious bad habit that poults may acquire is that of cannibalism. It is quite difficult to halt once it gets started and the cause or

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causes may not be readily apparent.

The old saying, "The devil always finds work for idle hands to do," is certainly true of turkey poults. Idleness is often the primary cause of feather picking, the fore-runner of cannibalism. Plenty of feeding and watering space, with feed and water always available, helps to prevent idleness. Overcrowding is another cause of cannibalism. Poults should each have at least 1 square foot of room in the brooder house and more if they are to be kept confined.

Improper feed is most often blamed for an outbreak of cannibalism yet it is probably least often the real cause. A ration that is too concentrated, lacking in bulk, is sometimes associated with feather picking. Changing to a more bulky ration or using one from the start will sometimes stop the trouble.

The first step in stopping cannibalism is to remove the cause or causes. Next, look for the ring leaders and you may find that only a few poults are doing most of the picking. "Tipping" the upper beaks of the leaders, cutting them down to the "quick," will prevent them from doing any further damage and often stops the trouble in short order. Anti-pick salves, red colored and disagreeable tasting, are also useful in controlling the vice.

Making Caged Layers Pay

In the battery poultry business, the trick in making profits is not so much the production per hen, as it is the production per cage, and keeping up the production average of all cages. That must be borne in mind. All cost control systems are based on one cage. That is, every cost is computed at so much per cage, so the cage must produce regularly, rather than an individual hen. And the average break-even point for profits is 180 eggs per year, per cage, not per hen. It may take two or even three hens a year in a cage to keep up that 180 egg average per cage. Nonetheless, that's how it should be figured.

Profitable production per cage will vary in different localities, depending on costs of doing business, also on market prices of eggs. But it's nearly safe to base all cost calculations on a cage production of 180 eggs per year. Anything over that average starts your profit on the operation. And it might be well to add, to those who are considering battery poultry as a full time business (rather than as a hobby, or to produce enough eggs for the family or friends) that it takes 5,000 cages, or more, to make a justifiable profit on the investment.

—Kenneth Cloud, Poultry Tribune, July-August, 1941.

Keeping Feed in Good Condition Is a Summer Problem

By J. K. WESTBERG

Condensed from Eastern States Cooperator

THE problem of keeping feed in good condition is of more importance this year since the possibility of feed cars arriving late is a real one; hence, of necessity, you must store more feed. Checking closely the following details will save you money and avoil trouble.

1. Your local representative, dealer, or warehouse should see that the feed has not become wet in transit.

2. You or your trucker should make sure that the feed does not get wet when delivered from the car to your farm.

3. Feed should not come in contact with any material such as oil, acid, fertilizer or disinfectants which damage both the bag and the feed.

4. To prevent disease communication, do not allow empty feed bags to come in contact with the feed either during delivery or in storage.

5. The worst enemy of fresh feed after it is on your farm is the feed bin and the feed truck into which new feed is dumped while old feed remains in the bottom. Empty fresh bags of feed daily as they are used. Do not dump a two weeks' or month's supply at one time. The bottom of feed bins and feed trucks are ideal breeding places for grain mites and weevils.

6. Destroy all pests. Every beetle, bug, worm and moth that may be found should be killed since they multiply rapidly. Grain mites are small, soft-bodied pests, microscopic in size, and when found in large numbers in feed, they give the impression of a seething or "boiling" mass. The bodies of these mites contain toxins which will cause inflammation of the digestive system. In some cases, the death of birds or animals has been caused by mites. The eggs of mites are commonly found in grain and during hot, muggy weather they hatch rapidly. Kill mites, beetles, bugs, worms and moths by spraying the feed storage room thoroughly with fly spray.

Carefully sweep the premises to prevent the harboring of eggs or infestations of mites in cracks and crevices.

7. Keep the storage space DRY as well as clean. Damp storage causes spoilage and encourages the

Eastern States Farmers' Exchange, Springfield, Mass.
(Eastern States Cooperator, July, 1941)

development of certain serious pests.

8. Give the feed in storage a chance to "breathe." Allow for ventilation about the bags. Pile the bags off the floor on a rack. The sun should not beat in upon bags of stored feed. When the weather is muggy or misty, and atmospheric moisture is high, prevent the circulation of outside air around stored feed.

9. Use the oldest feed first in order to keep all of your supply fresh. Do not dump fresh feed on top of older feed in hoppers; push the latter to one end and then scatter it over the fresh feed.

None of the above suggestions are too difficult to follow. Careful handling of feed is a part of good management in the feeding of cows and chickens.

Judge a Feed by Results

The only way that you can properly judge a feed is by what it costs you to produce a dozen eggs. Any feed that lowers your production cost, either by increasing egg production or by lowering the amount of feed consumed in proportion to eggs produced, is worth more money to you. If the feed properly nourishes the birds by its greater vitamin content, better quality, and balance of protein, and thus enables you to average one more egg per bird per month, you can ordinarily afford to pay at least 10 to 15 per cent more for it.

Not so many years ago, poultrymen whose flocks averaged 60 per cent production all winter thought they were doing a swell job. They didn't believe it possible for anyone to get more eggs without having birds going into a tailspin and drop 10 to 20 per cent in production for two or three months. Today there are many flocks averaging well over 70 per cent production all winter without any serious slumps. These same breeders, no doubt, will see the day when they make it 80 per cent. Sustained high production merely means, first, you are feeding all your birds properly, and, second, they are well bred for adaptability to continuous high production.

—From "Save On Feed Costs," Copyright, 1941 by The Quaker Oats Co., Chicago, Ill.

❝ DUNCAN HINES, America's where-to-eat expert, says—when in doubt order ham and eggs for "it takes an awful poor cook to spoil a slice of ham, and no cook can disguise poor eggs."

—U. S. Egg and Poultry Magazine, August, 1941.

POULTRY RESEARCH

Pullorum Resistance Studied

Strains of relatively pullorum resistant chicks may be developed by artificial selection and by natural selection in the presence of natural infection, but the development of such chicks is not a satisfactory substitute for control and eradication programs by agglutination tests, conclude H. M. DeVolt, C. D. Quigley, and T. C. Byerly, reporting in Poultry Science (Vol. 20, No. 4) on tests carried on at the University of Maryland. Pullorum clean flocks produce chicks which are relatively susceptible to pullorum induced by artificial exposure. The pullorum-resistance encountered under the conditions of the experiments was of a relatively low order.

Breed Differences in Pullorum Susceptibility

White Leghorns are more resistant to pullorum disease than are heavy breeds, report F. B. Hutt and J. C. Scholes of Cornell University in Poultry Science (Vol. 20, No. 4). The proportion of White Leghorn adults reacting to pullorum blood tests was only from one-ninth to one-third that of heavy breed adults. In controlled experiments, Leghorn chicks were always more resistant to artificial inoculations of pullorum than were heavy breed chicks. Leghorns were also more resistant than Rhode Island Red and Barred Rock chicks when given natural contact with the disease. Resistance seems to be a characteristic of the Leghorn breed, and is not necessarily associated with the dominant white which differentiates the white variety from others. It is suggested that, for breeders of White Leghorns, the necessity of blood testing and elimination of reactors is open to question.

First Generation Improvement in Hatchability and Feathering

Daughters of hens selected because of high egg hatchability, which were mated to cockerels selected because of promising hatchability of their immediate families, gave an average hatchability of 78 per cent of fertile eggs set, as compared with 70 per cent for the hens, report A. E. Tomhave and W. C. Skoglund in the 1940 Annual Report of the University of Delaware Agricultural Experiment Station.

Among progeny resulting from a breeding pen selected for improvement of feathering, 27 per cent of the males and 73 per cent of the females were completely feathered at 8 weeks of age, compared with 19 per cent of the males and 71 per cent of the females for the entire 1940 hatch. In 1939, 11 per cent of the male progeny and 56 per cent of the female progeny were completely feathered at 8 weeks. Breeders used in the 1940 test were selected from the 1939-hatched chicks.

Family Differences in Chicks' Tibiae Ash Content

Tibiae of day-old chicks from several dams differed significantly in percentage of ash, reports J. B. O'Neil, Central Experimental Farm, Ottawa, Canada, in Poultry Science (Vol. 20, No. 4). This variability suggests that the size of groups of chicks used in estimation of vitamin D should be increased, in order to minimize the effect of such family differences, and thus make the tests more accurate. There were also significant differences in body weight of chicks from different dams, but body weight was found to be no indication of ash in day-olds.

Factor Hindering Vitamin E Use Found in Cod Liver Oil

Ourbreaks of nutritional encephalomalacia (a nutritional disturbance causing lack of muscular coordination and paralysis) in brooder chicks being fed diets seemingly adequate in vitamin E may be due to the presence in the diet of excessive quantities of a factor that hinders vitamin E utilization, says John C. Hammond of the Bureau of Animal Industry's Beltville Research Center in Poultry Science (Vol. 20, No. 4). The factor was not identified, but it was found possible to remove it by washing the cod liver oil with a one-fifth normal sodium hydroxide solution.

Iodine Requirements of Poultry

Goiter, accompanied by slightly inferior growth, has been produced in both sexes on rations containing as little as 13 parts per billion of iodine, say investigators in the Colorado Experiment Station Fifty-Third Annual Report.

One thousand parts of iodine per billion parts of the experimental goitrogenic ration (containing liberal amounts of soybean oil meal) were required to produce a normal, active gland. Normal resting glands were produced by 5,000 and 10,000 parts of iodine per billion parts of the ration.

Feeds produced in Colorado and Iowa have been found to be very low in iodine. Local water contains only minute traces of the element.

Manganese Absorption in Fowl

Absorption of manganese was not decreased by the presence of calcium and phosphorus in levels similar to those normally found in poultry rations, in tests conducted by Marie S. Gutowska, E. M. Parrott, and F. A. Slesinski at Massachusetts State College, says their report in Poultry Science (Vol. 20, No. 4). Absorption of manganese was found to be proportional to its concentration in the intestinal tract. There was no significant difference in the absorption of manganese between male and female birds.

Vitamin A Storage in Chicks

Chick rations should include more vitamin A than is needed by the body immediately, especially during the first 3 to 5 weeks, as large stores are frequently not transmitted through the egg, and a supply of vitamin A in the liver is necessary for chick health. Max Rubin and H. R. Bird, University of Maryland investigators, report in Poultry Science, (Vol. 20, No. 4), that vitamin A stores are built up in the chick's liver just as efficiently when carotene is fed as when vitamin A is fed. Pullorum infection does not seriously decrease the liver store of vitamin A in very young chicks. Liver stores of vitamin A decrease when chicks are starved, but not as rapidly as when chicks are fed a deficient ration.

Hens' Fat Intake and Output

Hens are able to synthesize egg fat from constituents in their ration other than fat, if necessary, and will continue egg production when fat is lacking, though at a lower rate, report Walter C. Russell, M. Wight Taylor, and Harry A. Walker, agricultural biochemists at New Jersey Agricultural Experiment Station and Rutgers University.

When fat was removed from a normal ration (leaving .08 per cent or less), hens produced more fat in eggs than was present in their feed. The fat of eggs produced on low fat rations was more saturated than that formed on a normal ration. There was no abrupt cessation of egg production, as might be expected if an essential nutritional factor were absent. In connection with this study, it was found that the digestibility of fat in the typical all-mash ration fed was 88 per cent.

Albumen Index and Age of Pullet

Eggs tend to be more watery during the summer and early fall because most chickens are spring-hatched, and have been laying for a several months, reports F. P. Jeffrey, New Jersey Agricultural Experiment Station investigator in Poultry Science (Vol. 20, No. 4). It is possible to obtain exceedingly firm albumens from fall-hatched birds, but it is almost impossible to obtain large eggs during the summer months from such pullets.

Low egg production tends to be associated with high albumen indices. All birds on test showed an absolute decrease in albumen index throughout the year as they became older, which is strong evidence to support the theory that albumen index behaves as a function of age of bird during the pullet year of production.

Affect of Protein Levels on Feathering and Growth

Pullets fed a growing ration containing 18 per cent protein for 12 weeks, and a ration containing 16 per cent protein after that date, weighed .25 pounds more per pullet at 18 weeks of age than did pullets fed a ration with 18 per cent protein for 8 or 10 weeks, and 16 per cent protein after that, reports A. E. Tomhave in the 1940 Annual Report of the University of Delaware Agricultural Experiment Station.

When the protein level was lowered from 18 to 16 per cent at 8 weeks, 50 per cent of the pullets were bare-breasted when they reached 18 weeks of age, as compared with no bare-breasted pullets when the protein level was lowered at 10 or 12 weeks.

Feeding Infertile Eggs

Combining soybean oil meal and infertile eggs makes an excellent, cheap protein supplement for chick rations, report J. G. Halpin and C. E. Holmes in "What's New in Farm Science," Wisconsin Agricultural Experiment Station Bulletin 451. Eggs must be hard-boiled, then run through a food chopper without removing the shells, and mixed with enough soybean oil meal to prevent stickiness. Chicks fed this protein supplement gained weight nearly as fast as chicks receiving a good standard feed, and grew much more rapidly than chicks receiving soybean oil meal (without eggs) as the sole protein supplement.

Poult Growth and Calcification Related to Hen's Vitamin D

Growth of poults up to four weeks of age on a ration devoid of vitamin D was in direct proportion to the level of vitamin D in the ration of breeding hens, report E. I. Robertson, M. Rhian, and L. A. Wilhelm of the Washington Agricultural Experiment Station in Poultry Science (Vol. 20, No. 4). Poults from hens receiving cod liver oil and irradiation from sunshine attained greater weight at four weeks than did poults from hens receiving the same or a higher level of cod liver oil alone. Vitamin D in rations for breeders is an important factor in the growth of poults, particularly if the poults' ration is inadequately fortified with vitamin D. The development of rickets on a supposedly satisfactory starting ration may be due to an insufficient level of vitamin D in breeder rations.

Range for Turkeys

Range requirements of turkeys were studied at the Oklahoma Experiment Station (Biennial Report 1939-40). Confined to limited areas of Bermuda grass, 25 square feet per bird seemed to be the minimum for good results. On 10 and 15 square feet per bird, growth was retarded and cannibalism tended to become prevalent. No difference in growth was observed when turkeys were confined to the house, given 6 to 10 square feet per bird or when they were given a small, bare yard, but under these conditions they consumed somewhat more feed and were more given to develop bad habits, such as feather picking.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1941.

Frequency of Gathering and Egg Quality

Eggs held in nests for 4, 6, and 8 hours after laying, during the summer months, increased in albumen score, decreased in albumen height, and decreased in percentage of firm albumen in relation to the length of their holding period, report W. C. Skoglund and A. E. Tomhave of the Delaware Agricultural Experiment Station in Poultry Science (Vol. 20, No. 4). In a second experiment conducted during the winter months, eggs held in a refrigerator for 4, 6, and 8 hours showed no increase in albumen score, and only slight decreases in albumen height and percentage of firm albumen, indicating that the deterioration found in the summer experiment resulted chiefly from exposure to heat.

A Comparison of Yolk-Color Rotors

Heiman-Carver yolk-color rotors are not suitable standards for the accurate measurement of egg yolk color, although they may be used advantageously in cases where the results are not to be compared with those obtained with other rotors, reports Charles H. Denton in Poultry Science (Vol. 20, No. 4) on work carried on at the Bureau of Animal Industry's Beltsville Research Center. When five rotors were compared, it was found that fading of colors and poor duplication of original colors caused a wide variation in classification to be made by seven Beltsville investigators.

Effect of Confinement on Hen's Condition

After a year's confinement in laying cages, S. C. White Leghorn hens in laying condition showed a marked atrophy of the heart, liver, and gizzard, but showed no significant difference from hens kept on the floor in any other edible portions of the body, report F. P. Jeffrey and R. E. Britt of the New Jersey Agricultural Experiment Station in Poultry Science (Vol. 20, No. 4).

Why Maintain the National Board?

Why maintain a Poultry and Egg National Board? What good can it accomplish under present-day conditions?

In a broad sense, its activities may seem like peace-time conscription of an army. And maybe they are. Peace-time conscription wouldn't have been a bad idea four or five years ago, would it? We didn't particularly need it then, but we would have been prepared when the need became apparent.

So it is with our egg and poultry industry. While we've been following lines of least resistance—sort of drifting with the tide—other commodities have been mobilizing their forces and have become the aggressors in capturing and maintaining a sizable portion of the consumer's budget.

Looking Ahead

Today, we admit the markets are favorable. The call is for more production. It is issued by those who think only of defense needs from a consumer's viewpoint. Tomorrow, when the conflict is over, they may forget the defense needs of the producer. That's our job. Are we ready? Are we looking through the present into the future five or ten years hence? Only by so doing can we meet the issue of tomorrow successfully.

In my humble opinion, we must build all branches of the industry into a cohesive unit, in which all will contribute to the financing of the Board's activities on a basis of equity, to the end that we may establish ourselves in the minds of the consumers so effectively during these temporarily favorable times, that our products will be retained in the consumers budget after the favorable times have passed and after other products have been discarded.

This cannot be done by resting on our oars. Through good seasons and bad seasons, our story must be told, our products played up, their nutritive value emphasized, their health-giving vitamins and minerals exploited over and over again.

Industry Support Essential

Nothing should ever impede our forward march. Progress consists of moving ahead. There is only one other way to move—backward. There is no half way place. Every poultryman, every hatcheryman, every poultry feed merchant, and every poultry supply manufacturer should recognize the work and the value of the Poultry and Egg National Board as a form of insurance to preserve the industry and to keep it on the highest and most remunerative level possible. Wholehearted support by all branches of the industry will make this possible.

—Clyde C. Edmunds, Poultry and Egg National Board Reporter, July, 1941.

Marketing Costs of Kosher Live Poultry

Condensed from Report by City of New York Department of Markets

A BRIEF examination of live poultry marketing reveals three changes that have taken place during the last few years. These are: a reduction in the retail price; the continued increase in truck receipts over receipts by freight; and a trend towards elimination of labor disputes which formerly characterized the industry.

Many reasons are offered for the decrease in the retail price of kosher poultry, and all combine to achieve this result. One reason often given is the diminished group of religious observers and foreign born consumers. The largest purchasers of live poultry have always been those of Jewish faith. With the slackening of immigration and the rise of a new generation, there has been danger of a partial loss of market to the dressed poultry trade.

Dressed poultry has recently been offered at more and more reasonable prices, and some part of any retail price reduction in live poultry, particularly kosher live poultry, may be attributed to the efforts of some retailers to restrain their customers from making a change in their buying habits. Their efforts have not been aided by the failure of many retailers to modernize their businesses and make the old, dirty, feather-ridden stores a thing of the past.

Competition from Outside Areas

Another factor figuring in the price reduction is the competition of live poultry kosher killed in outside areas, such as Lakewood or Philadelphia, and then shipped into New York City. Operating and labor costs in these areas are much lower than those in New York City and enable poultry dealers buying through these channels to offer their birds for sale at a somewhat cheaper price. It has been estimated that upwards of 150,000 pounds per week of kosher poultry enter New York City in this manner.

Finally, to any list of reasons for a retail price change must be added the elimination of some of the small retail units. The concentration of sales in large-volume retail outlets inevitably results in a small operating margin and a reduction in selling price.

Truck Shipment Costs Less

The cost of shipping by truck is less than the cost of freight shipments. Poultry reaching the city by truck may be routed directly to the slaughterhouse when that agency makes a direct purchase from the

City of New York Department of Markets, William Fellowes Morgan, Jr., Commissioner; Frances Foley Gannon, Director, Bureau of Consumer's Service; F. H. La Guardia, Mayor.

shipper, a type of operation which has lately become more frequent.

The elimination of labor disturbances has been most noticeable in Local 167, the International Brotherhood of Teamsters, and in Local 370, the Schochtim's Union. Long term agreements either have been made or are in the process of being made between these labor organizations and the trade. The relations between members of Local 435, the Patent Carmen and Handlers Union, and their employers have also become much more settled recently.

Except for the decrease in retail price, which has been absorbed principally by the retailer, operating margins in the live poultry industry have remained fairly constant. For the purpose of examining these margins, we have presented breakdowns of two typical methods by which the flow of live poultry from the producer to the consumer is effected. These differ basically in the type of transportation employed—in the first case, freight; and in the second, truck.

Costs in Typical Freight Shipment

The farmer represented in the typical freight operation is generally not engaged in raising poultry for sale, but is a general farmer or is in the egg business, and occasionally may sell a few birds. This necessitates the services of a huckster, who usually collects poultry in small quantities from farms in scattered areas. His activities may also include the handling of eggs and other farm products. The farmer's average price in this type of operation has been estimated at 15 cents. This amounts to 49.5 per cent of the consumer's dollar. The huckster retains a margin of 1¼ cents, or 4.1 per cent of the consumer's dollar.

When the huckster has gathered a sufficient quantity of poultry, he sells it to the country dealer, also known as the shipper, or speculator. The country dealer in turn ships in carload lots to the city receivers. For his services he receives an average margin of ¾ cents, or 2.5 per cent of the consumer's dollar. The selling price at this point has increased to 17 cents.

TABLE 1—Receipts of live poultry at New York City

Year		Rail	Truck	Total
1937	carloads	3859½	5624¼	9483¾
	pounds	61,752,000	89,988,000	151,740,000
	percentage	40.70	59.30	100.
1938	carloads	3114¼	5844½	8958¾
	pounds	49,828,000	93,512,000	143,340,000
	percentage	34.76	65.24	100.
1939	carloads	2651½	4995½	7647
	pounds	42,424,000	79,928,000	122,352,000
	percentage	34.67	65.33	100.
1940	carloads	2475¼	5434¾	7910
	pounds	39,604,000	86,956,000	126,560,000
	percentage	31.29	68.71	100.

—Compiled from U. S. D. A. reports.

3 Cents a Pound for Transportation

Between the country dealer and the receiver occur two important items, transportation and terminal handling. Transportation is divided into freight, taking 1.72 cents per pound, or 5.7 per cent of the consumer's dollar; feed, .31 cents per pound, or 1 per cent of the consumer's dollar; the car attendant, .41 cents per pound, or 1.4 per cent of the consumer's dollar; and shrinkage, .8 cents per pound, or 2.6 per cent of the consumer's dollar. Total transportation amounts to 3.24 cents per pound, or 10.7 per cent of the consumer's dollar.

Terminal handling costs total .82 cents per pound, or 2.7 per cent of the consumer's dollar. Included in that category are coop rental, unloaders, loaders, compensation and insurance, and the weighmaster.

The receivers' margin per pound of live poultry is one cent, or 3.3 per cent of the consumer's dollar. The name formerly given to this operator was the commission merchant, but the commission type of sale has become almost obsolete and the poultry is now bought outright by the receivers. Some individuals have criticized this condition as being conducive to profiteering and price fixing in the wholesale market, to the detriment of the buying public. The receivers' selling price to the slaughterhouse is the total of all of the previous margins and amounts to 22.06 cents per pound.

The average margin of the slaughterhouse is 3 cents per pound. In terms of the consumer's dollar, it amounts to 9.9 per cent.

Retailers Get 4 Cents per Pound

Retail operation may be generally divided into two types, sales by butchers and sales in a store devoted exclusively to kosher killed poultry, the retail chicken dealer. The butcher normally selects the best birds, paying a premium price, and reselling them at an average of 6½ cents above his cost. The retail chicken dealer's average mark-up is 3½ cents.

Since retail sales of kosher poultry by butchers amount to about 1/3 of those of the chicken dealers, the weighted average mark-up for both retail outlets was fixed at 4¼ cents per pound. This makes the cost to the consumer 29.31 cents per pound before plucking, which operation adds another cent per pound to the price of the bird and fixes the final cost of kosher killed poultry to the consumer at 30.31 cents per pound.

Large Poultrymen Ship by Truck

In the truck type of operation, the farmer usually raises poultry commercially, and periodically offers large flocks for sale to the highest bidder. As a result of this, the services of a huckster are unnecessary, the country dealer usually acts alone in the purchase and shipment of the poultry. Since he handles large quantities of birds, his margin is somewhat lower than that of the country dealer in the freight type of operation, amounting in this case to ½ cent, or 1.6 per cent of the consumer's dollar. This also enables the farmer to achieve a higher return, computed at 17.81 cents per pound, or 58.8 per cent of the consumer's dollar. Transportation is divided into the truck cost, 1.69 cents per pound, or 5.6 per cent of the consumer's dollar; shrinkage, 1 cent, or 3.3 per cent of the consumer's dollar; and the unloading charge, .06 cents per pound, or .2 per cent of the consumer's dollar.

From this point on, the margins—receivers', slaughterhouses', retailers' and pluckers' — are identical with those in the freight type of operation and the ultimate cost to the consumer is the same, 30.31 cents per pound.

Labor Costs are High

Because of the large degree of unionization in the live poultry industry, labor costs have always been rather high. Among these costs, however, some stand out as being excessive. When poultry arrives at the 60th St. yards, it is unloaded from the cars, cooped, and placed on trucks. Performing these duties are seven men; two pullers, who remove the poultry from the tiers; two carriers, who take the poultry from the pullers and place them in the coop; one filler-in, who nails the loose slats on the coops; and two loaders, who place the coops on the trucks. Each man receives $9 per car for this work, which requires approximately two hours of their time. A weighmaster also must be paid $10 per car for weighing the poultry, which requires about the same amount of time.

In the truck type of operation, a similar charge is made for a top man or unloader, whom the union specifies as the only person allowed to pass the baskets down to the handlers. He receives $5 per truck and needs about one hour to perform his job.

$5.00 an Hour Nets $20 per Week

The very high rate of pay for union labor in handling live poultry is the result of a falling off, over a period of years, in the consumption of live poultry. There are many more members in the various unions in the live poultry trade than are needed. Delegates, in their efforts to spread the work, so that every member can go home with at least something at the end of the week, have been forced to demand the high hourly rate. Many of the members take home each week not more than $20.00, which of course is way below a living wage, and work only four to five hours a week.

Such a situation raises the question as to whether or not the consumers should be called upon to support the unnecessary union members. It would seem that if society is expected to do so, it would be better to do it through the relief rolls.

This statement is made with no desire whatsoever to criticise the union delegates. They appreciate that the conditions are unsound and uneconomic and there is every reason to believe that they will be glad to sit down shortly to discuss ways and means of correcting them, with the view to improving the system when the new poultry terminal opens this fall in the borough of Queens.

Feed Turkeys Often

Where a flock of turkeys is run on the range with a herder in charge, that man can make good wages by feeding a number of times a day. A turkey is a curious sort of bird. Liking companionship of humans, he is intensely curious of anything a human caretaker does. If the herder will merely go along the troughs and stir up the feed with a stick, a certain number of the birds will follow him and eat as they go.

The quicker you get your birds to market, the larger are your profits and the smaller your risk. Don't try to make your trough too big, but have more of them, and fill them oftener.

—Norbest Turkey News, June, 1941.

Merchandising Quality Chicks

The most important part of merchandising chicks is production. In the first place, you cannot sell quality chicks if they are distress chicks. You will do well to adopt the policy to set eggs only upon order or a reasonable over-set. There is a great thrill to be able to say to a customer who wants a thousand chicks tomorrow, "I'm sorry, the first chicks that we will have available are for delivery two months from next Monday." It is only rivaled by the thrill you get when you have a thousand chicks coming off tomorrow with no place to put them and a customer walks in and takes them!

—Herbert A. Hogsett in Chicken Chatter, July, 1941.

Food Lockers Aid Poultry Consumption

By WILLIAM KOHLMEYER
Purdue University

Condensed from 1941 Indiana Poultry Blue Book

REFRIGERATED locker plants for storing frozen foods have appeared in many communities during the last few years. Meats, fruits, and vegetables are the food products most frequently frozen and stored. Increased use of frozen food storage facilities may exert a great influence on the food consuming habits of the nation.

Freeze Young Birds

Certain classes of poultry are well suited for frozen storage in food lockers. Broilers and fryers weighing 2 to 4 pounds are usually at their seasonal low price in July and August. Fowl (hens) for roasting or stewing may also be a good buy in late summer. Turkeys may be frozen during the fall or early winter for use later. Well-planned use of locker storage can provide a good selection of poultry for use throughout the year.

Farm people who raise chickens sometimes find that summer prices offered for surplus cockerels are low. These cockerels may be dressed and frozen to furnish a good source of low-cost frying or roasting chicken during the rest of the year.

Few farm people are interested in freezing hens. The average farm flock will supply a number of non-laying birds that may be butchered during the year. Sometimes birds which become injured can be salvaged for meat purposes. There is little reason for freezing any class of poultry that is readily available as fresh stock throughout the year, or that shows little price variation during the year.

Urban locker patrons may freeze a few hens, but are ordinarily more interested in fryers than in any other class of poultry.

Turkeys seem to have a definite place in the frozen storage picture. With the development of increased efficiency in turkey production, prices have worked to lower levels, and consumption has increased along with production. Turkeys are in demand for use at dinner parties, family gatherings, and special events throughout the year.

Preparation for Freezing

In preparing broilers or fryers for freezing most people like to have their birds plucked clean, singed if necessary, and washed. The birds should be full drawn, which ordinarily includes removal of the lungs and kidneys. The entire carcass may be frozen or the bird may be cut up, ready for the skillet, and frozen in a block of ice. When freezing the whole carcass, an ice glaze will help prevent dehydration in storage. Some people even go so far as to freeze separate packages of light meat, dark meat, bony pieces, and giblets.

Turkeys and larger sizes of chickens are seldom cut up for freezing. Here again, a clean job of dressing is desirable. If the neck is removed and placed with the giblets in the body cavity, a much more compact carcass is obtained for storing.

Freezing Half a Turkey

In recent years, large tom turkeys have been selling at lower prices than smaller birds. Although a 20 to 25 pound turkey may be rather large for some families, the frozen carcass may be halved by using a band saw. Many houswives have learned that a half turkey is easier to roast than a whole bird, and the amount of meat on a half turkey is well suited to many needs. When sawing a turkey, it is customary to place the carcass breast up, and let the saw follow the length of the breast bone.

With most classes of poultry, the full dressed weight is about 75 per cent of the live weight. The exact percentage will vary with the degree of maturity and the finish of the individual bird. "New York dressed" birds (blood and feathers removed) will weigh about 90 per cent of their live weight.

Freezing Won't Improve Quality

It should be remembered that freezing can only preserve the original quality of the poultry frozen. An old stag with coarse, tough meat fibres will still be an old stag when thawed out. There seems to be no good reason to expect freezing to improve poultry quality. Well-fleshed, soft-meated poultry, that has been properly dressed and promptly frozen, is a welcome addition to the housewife's food supply.

❡ ONE of the greatest things done by Capt. Cook of exploring fame, says an Australian paper, was the spread of poultry and eggs throughout the islands of the South Sea. Capt. Cook would always take some hens and a rooster ashore when he visited a new island. As he made his rounds, he renewed the stock from the islands where he had previously left birds. At first the natives venerated the eggs and could not be induced to eat them; later on however, they became important food in these islands.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, July, 1941.

Diary of a Poultryman

By PERCY S. WHITE

Wayne County, Ohio

Aug. 1—I think we cleaned up the last of the broilers this morning. We went through all the houses with catching hooks and picked up the odds and ends. The pedigreed cockerels were examined individually to see that each one carried a wing band. Five of the market boys had slipped over with the blue bloods and three of the blue bloods were sold for defects. Of course, the breeding birds will get a good going over in the fall by the R.O.P. inspector, E. Amiet, before they are approved. There will be some discards and there is no question about it. I would say that at present they look exceptionally good, but there is many a slip twixt cup and lip.

Aug. 2—Inspector Harold Sidle is going around with a worried look on his face. It seems that the hot weather is working on interior egg quality. Harold thinks most of this is due to lack of care on the part of the producers, that the boys are too busy on the farms to take the proper care of their eggs. So far this summer, my egg quality has maintained itself, most of them going in U. S. Extra Specials. We are gathering them four times a day and placing them directly under the fan. The present room temperature is 60 degrees and the relative humidity is 85 per cent. Even with such high humidity, I have never had any moldy eggs, although that is a common complaint among the candlers.

Aug. 3—All of our cleaning equipment, shovels, hoes, rake, scrapers, whisk brooms and broom, have been collected. We are getting ready to start the big cleaning job Monday morning. It certainly does take an awful lot of equipment to clean a chicken house. Before we get through with the job, all of the tools, including carpenter, pipe fitting, and electrical, will be scattered over the ranch. I can't understand why it should be, but it always has happened, and I know this year will be no exception.

Aug. 5 – The "best laid plans of mice and men" . . . well it happened today. All we got done today was to move our tools in and merely get started. John Arthur, who is going to help with the cleaning, decided it would be easier for him to sleep on the ranch than to go to and fro from town. He and Donnie cleaned the "emergency help" living room in the storage building. This was a bigger job than any of us realized, for the room had been used as a catch-all for several months. What I need is a place for everything and then keep everything in its place.

Aug. 6—The boys made good time with the cleaning today. The peat moss litter has all been bagged. Tomorrow it will be moved; the fine stuff to be stored for future sales and the course material spread on the old orchard on the Fike farm. The idea is to get all this material out of the way so the real work—scraping and cleaning—can be done easier. The scraping is what makes the blisters on the hands, but it seems to be necessary to do a certain amount of it. About a week is required to clean a house, because the regular work must be done also.

Aug. 7—Some kind of a varmint picked off a nice pullet last night. Of course it had to be one of the best ones; always is. Several days ago Donnie set a steel trap on top of a 20-foot pole in anticipation of any owl doing the dirty work. So far there have been no results. I have an idea that it is a house cat that has reverted to the wild. On the other hand, it might be a hawk on an early morning raid. We caught a hawk in a bear trap several weeks ago. It wasn't so big, but vicious enough to kill a full grown bird. I don't mind trying to trap or shoot something if I know what that something is. This uncertainty of the miscreant is baffling.

Aug. 8 – H. M. Hyre, extension poultryman of West Virginia wants me to speak before the annual meeting of the State Poultry Association Sept. 25. The meeting will be held at Jackson's Mill down below Clarksburg. I guess I can go . . . if the work is all done. As a matter of fact, the work is never done, so far as I can determine. I forgot to mention that the very first job we do when we start to clean a house is to drain the water fountain. Then it is given a heavy coat of crank case oil. I have determined by bitter experience that the troughs will rust or pit worse when they are not in use. They leak quick enough as it is, without courting disaster.

Aug. 9—I gathered up a coop of running gear hens (soup stock) a few days ago and sold them on yesterday's auction. They didn't bring very much, only 8 cents, but I was rather surprised that they sold that high. The sale was more profitable than medication or incineration in the creation of a bank account, even after the gasoline was deducted. They were not top stock, but they were better than a coop of one producer's which I saw the inspector reject. One can't cut the mustard with the inspector with bare backs, razor breast bones, and swollen

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heads. He just won't stand for it . . . nohow.

Aug. 10—Used crank case oil from filling stations is at a premium around this neck of the woods. It seems that the boys who live on the back woods want it to put on the road in front of their house to lay the dust. I have always used oil on the floor when we cleaned house, but this year I am going to try lye and hot water. A good strong solution, scrubbed on, ought to put the quietus on about any common bug found in a chicken house. If there is a bug that it won't kill, then I will have that particular bug.

Aug. 12 — Walter Buss and his gang have just finished bloodtesting the birds that were moved in the first floor. They were brought down from the second floor, so it was just a question of toting the coops down the steps. It is quite a task at that to carry a coop of birds down a set of steps; takes two to do it. The reactors were one-half of 1 per cent, which I claim is getting things down pretty fine. If I could be as accurate in all of my wild goose chases as Walter Buss claims he is in his blood readings, life would be sweet. But I suppose it takes as trained an eye to make blood readings as it does to candle eggs.

Aug. 14 — I met with a peculiar accident when gathering eggs this afternoon. I fell down in the west house, carrying a basket of eggs at that. A wild-eyed and evidently rattlebrained hen ran between my feet and tripped me. Down I went, down on my knees, trying to keep the basket from hitting the floor. I was successful, but the eggs rattled around like dry peas in a pan. Kid White called my attention to the fact that there was an awful lot of broken eggs in one of the baskets. She found that out when she cleaned them.

Aug. 15—Had such a good chance to buy a couple of hundred bushels of wheat that I couldn't afford to miss the chance. Tom McKee, grain dealer over Craighton way, phoned me that he was stuck with a load. He had recleaned it, but still the moisture was too high for the flour mill. I'll gamble with the boys any day on damp wheat, and when the price is attractive, I feel like the transaction is a sure thing for profits on my part. It will be delivered tomorrow, so the second floor of the storage building has been "red-up." We got rid of a bunch of junk in order to make room for the wheat.

Aug. 16—It is queer to me what keeps on picking off an occasional pullet. Donnie found another remains today. That is all that was left too . . . just the remains. From the looks of the frame, it was another big one. Sometimes it seems to me

that the varmints get all my good pullets and that I have to try to make a living from the ratty ones.

Aug. 17—Another week's work is done. All the regular work has been kept up, including work in the truck patch, and the second floor is practically cleaned. The perches and nests are drying from their creosote bath. The first job Monday morning is to scrub the floor with hot lye water, lay the litter and make the nests. Then Buss and Co. will come out Monday night to bloodtest.

The wet wheat is in bags, set about 6 inches apart with the tops rolled down. All windows and doors are wide open. I don't think there is going to be any trouble in getting it dry, not this kind of weather.

Aug. 21 — Picked up another load of off-grade wheat today. It is in the upstairs of the north house feed room and the range feed house. The pullets are beginning to eat grain to a fare-ye-well. Plenty of wheat and whole corn in the evening and mash all the time is bringing them along in good shape.

It is surprising how much oyster shell they eat. They look like they have good bones too, at least the frames of the victims seem to be good. And water—well, they drink gallons and gallons every day. We start the auxiliary pump when we water them, because it makes a better flow at the water barrel.

Aug. 22 — Two coops of running gear hens on today's auction, and I don't think that was very many culls from the third floor. There were a few gray-eyed birds, but most of them were just worn out layers. When a laying bird is worn out, I feel that I am fortunate to even have some thing to sell, although it is only soup stock. I don't like to see these gray-eyed, blind fellows, but the blind poet Milton said, "they also aid who only stand and wait."

Aug. 23—Today happened to be oil changing and greasing time for the little truck, so I stayed in town long enough to have it done. It pays me, even in the short run, to take care of my motor vehicles, for if anything should happen to the truck or car I don't know where I would find the money for replacements. I need a pile of money to pay feed bills, for this young stock is well nigh eating their heads off. The feed is being poured in them with the expectation of getting it back this winter in eggs.

Aug. 24—The third floor is cleaned in the entirety; it is all ready for the birds. But we will have to wait until Tuesday to start on the block house. Buss and Company or no one else will move and bloodtest hens tonight. It is Saturday night, and it comes only once a week. It is a great institution, Saturday night.

Donnie and I gave the lambs a

shot in the form of a worm capsule. His lambs look good to the Old Man; at least too good for worm bait. They are big husky fellows, but there is no use in taking any chances.

Aug. 26—I was in hopes that we would be able to get all the cleaning done by the first of Sepetmber, but I see we are not going to make it. We ought to make good time in the block house, for it is easier to clean. All the tools have been moved in the feed room, and we will be ready to go the first thing tomorrow morning.

Today we are catching up on all the odds and ends. There was a general clean-up of trash, tin cans, bottles, and accumulation of various kinds that went down in the Fike Farm gulley. Rye was sown in the sweet corn stubble for green manure in the spring. The car was washed, but there is no need of shampooing the truck until the cleaning is finished.

Aug. 27 — This old weed pollen and other accumulation in the air are getting a wee bit too stout for the Old Man. It also includes the dust in the houses. I will have to stay out of them for a while, but it seems as if the boys make better time when I am not around.

The manure pit has been cleaned and all of the coarse litter scattered on the field. When Harold hauls manure now, it is a double header. The little truck is loaded with coarse litter in bags and the pit droppings are in the trailer. A little truck and a trailer equals a fair size truck load of anything.

Aug. 28 — The west end of the block house is ready. Dropping pits, floor hoppers, tunnel (coffin-type) nests, and a sealed ceiling made cleaning easy. I have lost faith in putting crank case oil on the floors. It soaks right in the cement and the litter absorbs some, too. In just a few days there is no sign of it. On the other hand, hot lye water, scrubbed in with a broom, dries so quickly that the litter can be put down almost immediately.

Aug. 29—This has been an ideal arrangement. Last night the cull stock was put in coops and this morning, without rehandling the birds, I took them to the auction. The inspector sent four chassis back home. He looked at me and I looked at the birds. It was one time I didn't sass back. He was right; they should have gone in the incinerator instead of the coop. Somebody made a mistake, a mechanical error, so to speak.

I spent most of the afternoon scraping grass out of the center of the drive way. This ought to be the last time this year that this job will have to be done. It adds to the general appearance of the ranch to have the drives free of grass.

Aug. 30 — The east end of the block is cleaned and ready for birds but there is no use of moving any in, as the west house is empty. There is stock in the east and north houses, so in a few days we will move both houses at the same time. This will save a lot of monkey business and it seems to me that we have had enough of that for a while. Tomorrow is cleaning day, but that will be a rather short job since we have doubled up the birds.

Aug. 31 — Harold picked off the neighbor's cat late this afternoon, I was standing beside him when he shot and was surprised at the distance the gun carried. I was also surprised at the distance the cat ran after being hit. Off hand I would say that it was at least 300 feet back under the pines. And he was a big fellow, 12½ pounds by the scales. A cat that size can kill a 3½ pound pullet as easy as falling off of a log. We happened to be burning the incinerator at the time, so disposal of the evidence was a small matter. Next spring his ashes will be making little potatoes grow.

Ammonia Gas in Coccidiosis Control

Field trials conducted by C. Horton-Smith, E. L. Taylor and E. E. Turtle definitely show that the fumigation of poultry houses with ammonia gas is not only effective in the destruction of coccidia oocysts, but is also a practical procedure. Since coccidia oocysts have marked resistance for most disinfectants, the use of ammonia gas disinfection may find a permanent place in poultry practice.

In laboratory tests, these investigators demonstrated that 1 per cent ammonia (in solution) killed all oocysts suspended in the solution in 24 hours. Five per cent killed all oocysts in two hours, and a 10 per cent solution killed all oocysts in 45 minutes. The lethal effect appeared to be due to the presence of the ammonium, and the pH of the solution was relatively unimportant. In laboratory tests, ammonia gas in concentrations of 7.7 mg. per liter destroyed oocysts in three hours, and 25 mg. per liter destroyed oocysts in one hour.

In actual tests, poultry houses of 700 cubic feet capacity were used, and ammonia gas was introduced at the rate of 3 ounces for each 10 cubic feet of air space. Fecal samples of 25 gm., laden with coccidia oocysts, were placed in various parts of the houses, and the effectiveness of the fumigation was determined by the number of oocysts that remained viable in the test samples, as compared with the number of viable oocysts in control samples. Oocysts were all killed in the samples, with the exception of those placed beneath a false flooring, a spot that would be inaccessible to chickens. In these samples, however, the viability of the oocysts was greatly reduced.

In order to test the effectiveness of this method of coccidiosis control, coccidia-free day-old chicks were introduced into a poultry house that was known to be infected with coccidia previous to ammonia fumigation. After isolation for three months in this house, these chicks were still coccidia-free.

An important factor in ammonia fumigation appeared to be the rapid decrease in the ammonia concentration of the poultry house air, due to leakage and absorption of the ammonia by the house fabrics. For this reason, the investigators suggest that tarpaulins be used to cover the roof and sides of the house to be fumigated, since with this precaution higher concentrations of ammonia can be maintained over longer periods.

—North American Veterinarian, May, 1941.

Roosting Pens for Turkeys

On some turkey ranches, it is the practice to use roosting pens, permanent enclosures where the birds roost at night and from which they are excluded during the daylight hours. These roosting pens work very satisfactorily. Where there is danger from dogs, vermin, thieves, or other night prowlers, they prove very efficient.

A roosting pen's size depends entirely on the size of your flock. It should be large enough to give the birds some room if they decide to stampede at night, for if the fences are right against the roosts, too many birds might pile up and be injured.

The roosts, themselves, should be from 26 inches to not over 30 inches above the ground, and should be made of either round poles or 2 by 4's set with the narrow side up. We realize this is contrary to the ideas of many turkey experts, but when a 2 by 4 is set on edge, the bird has a chance to clutch it with his toes and take some of the weight off his breast. You get fewer roost dents by using your stuff this way than where you lay it flat, and a lot less breast blisters.

The birds should necessarily be confined the last thing at night and let out the first thing in the morning.

Where there are some sick birds in the flock, the roosting pen gives one a chance to go over all the night's droppings and thus eventually locate the sick bird.

—Norbest Turkey News, June, 1941.

VIEWS OF THE EDITORS

"... Thumbs Down"

The second Coffee Bill (introduced by Congressman Harry B. Coffee of Nebraska)—this one somewhat more liberal — has just been given the "thumbs down" sign by the Bureau of the Budget. Poultry raisers will be sorry to hear this news, because the purpose of this bill is "to enable the Secretary of Agriculture to furnish additional statistical information and marketing service for the benefit of the poultry industry and for other purposes." Included in the bill is the authority to establish a poultry division in the Agricultural Marketing Service, and to promulgate such rules and regulations as may be necessary to effectuate the purposes of this act. Among poultry leaders, there seems to be unanimous sentiment favoring this bill. Everyone agrees that the billion dollar poultry industry needs the additional services it is intended to render.

The billion dollar poultry industry must secure legislation which will provide specific funds to sponsor additional market and products research, gather additional production and marketing information, and broaden standardization and inspection work. In order to accomplish these ends, according to information we have obtained, specific legislation, such as is proposed in the Coffee Bill, is needed.

From reliable sources, we have obtained the following table dealing with expenditures in the Agricultural Marketing Service, which is one of the bureaus of the U. S. Department of Agriculture.

Estimated Expenditures in Connection with Various Commodities (For fiscal year 1941)

	Amount
Eggs and Poultry	$188,000
Dairy Products	221,000
Fruits	409,000
Vegetables	674,000
Livestock and Meats	916,000
Cotton and Cottonseed	1,424,000
Tobacco	466,000
Grain	1,149,000
Wool	58,000
Forage Crops	80,000
Seed Crops	105,000

It should be pointed out that these estimated expenditures do not include general administrative expenses, nor the general informational activities of the marketing information division. There are also a few other items for which it is difficult to establish a breakdown. Then, of course, it should be remembered, too, that the use of personnel overlaps in many of the activities.

But this salient conclusion is inescapable: In most of the other commodity groups which exceed the estimated amount expended on poultry and eggs and for which the more complete marketing services have been furnished, a relatively large proportion of the funds is provided for by specific legislation. Under present conditions, whenever the general appropriation of the Agricultural Marketing Service is shrunk, the commodities for which specific funds are not earmarked must carry the heaviest restriction in activities.

The "thumbs down" sign which was given the Coffee Bill, H.R. 4467, by the Bureau of the Budget presumably is for the following reasons.

"Enactment of this bill specifically authorizing these additional informational services would in effect constitute mandatory direction to furnish them, inasmuch as the U. S. D. A. already has the necessary permission for their performance in the basic law."

So, although the Secretary of Agriculture is favorable to this legislation, the "thumbs down" attitude of the Budget Bureau sets up a barrier which is well nigh insurmountable . . . unless the poultry industry, by letters, telegrams, resolutions, places in the hands of Secretary Wickard many demands for this bill, in terms of the "national emergency," because, after all, it is related directly to that. Poultry raisers have a right to ask for the aid this bill is intended to provide. The billion dollar poultry industry is being called upon to increase its capacity and efficiency and can truthfully represent that these objectives cannot be accomplished unless factual data bearing upon this subject is properly coordinated.

We should not forget that the Budget Bureau vetoed the World's Poultry Congress appropriation bill of 1939, which because of industry appeals later was passed by the congress.

Will the poultry industry resign itself to the decision of the Budget Bureau when carefully conducted investigations indicate the need for this helpful legislation? When our industry is rendering yeoman service in providing food for defense, why should there be quibbling over the Coffee Bill? Until it or its equivalent is passed, poultry work in the Agricultural Marketing Service will increase and decrease with the general appropriation. Our industry deserves better treatment than that.

—O. A. Hanke, Poultry Tribune, July-August, 1941.

Keep Feed Supply Ahead

Did you ever stop to think what it would mean if you were completely out of poultry feed for a week, a day, or even for a few hours? A drop in production, cannibalism, or forced sale—any of which would be expensive—would be some of the possible results. Poultry authorities are doing all that they can about this problem, but there is much that each individual poultryman can do

for himself to protect his own poultry interests.

There is, to be sure, plenty of poultry feed in the country. In fact, most poultry feeds are in abundant supply, but there are other problems. Most of the poultry grains are grown in the Middle West. Most of the mill feeds and concentrates come from the Middle West and feed mixing is done at railroad centers along the transit lines where feed companies happen to be located.

Very little whole grain is held in New England because the greater part of the milling and mixing is done farther west. Very little mixed grain is held anywhere today because of the recognized loss in feeding value due to holding.

Secretary of Agriculture Wickard in a recent release stated that a million and one-half bushels of government-held corn is to be stored in the Northeast principally in Albany, Philadelphia and Baltimore, but relatively little available storage capacity has been uncovered in New England.

The feed supply problem for New England poultrymen hinges around the shortage of railroad cars and railroad facilities for moving regular supplies of grain in competition with the demand on railroad facilities moving materials for the war industries. How soon or how seriously this problem will confront us, we do not know, but we do know that every poultryman can protect himself by increasing his supply of feed on hand. This should be done gradually by increasing each regular order of feed, not placing feed in storage, but keeping the supply for an extra week or two ahead at all times. This applies particularly to mixed feeds during hot weather. During cold weather, feeds can be held for a longer period. Should one be home-mixing, ingredients can be stored for a much longer period if storage space is available. Whole grains can, of course, be held for a considerable period or even a year's supply if adequate ratproof storage space is available.

It is possible that feed storage may bring about the necessity for some substitution in feed ingredients, but this can be safely done with the present knowledge of poultry nutrition. The main thing for each individual poultryman to do is to keep a liberal supply of grain and a more conservative supply of mixed mash ahead at all times to guard against a delay in feed delivery which could cause a lot of trouble.

—New England Homestead, July 12, 1941.

"Surplus"

The heavy egg yield per hen throughout the whole country this past spring was a record breaker. But there was no talk of surplus. Instead, the Secretary of Agriculture asked that hens be held for continued egg production and that poultry keepers grow their full quota of chickens. How different that was from the talk of "surpluses." How times do change!

A little buying for export and a little increase in consumer purchasing power have lifted quite a long list of commodities out of the "surplus" class. True enough, we still have some stocks of goods on hand. So has a grocery store. But the groceryman doesn't lock up at night with the feeling that everything on his shelves is "surplus." Rather, he considers it as necessary stock on hand.

It is not true that all available stocks are "surpluses," notwithstanding the widespread propaganda in the United States during the past few years that we were in possession of large "surpluses" of food. In the May issue of Farm Economics, Cornell University, Prof. F. A. Pearson, shows that if the slaughter of meat should have been stopped, there were about eight days' supply of meat on hand in 1939. This figure covers all meat, including poultry. The whole meat surplus, including all the breeding stock in the U. S., represented a consumption of 362 days. When it comes to dairy products and eggs in the U. S., he found that the consumption was a little over 11 billion pounds in 1939, and that the stocks at the end of the year were 183 million pounds, both figures being in terms of dry matter. This meant a 6-day supply, in case all production should cease.

In the case of wheat, there is a very heavy carry-over which Prof. Pearson finds represents 189 days' supply. Of fats and oils there was quite a stock on hand at the end of the year, representing 90 days' supply. But in meats, including poultry, there was eight days' supply. And in dairy products, including eggs, there was six days' supply. This is the reason why it has not taken much extra consumption to put up the price of butter, eggs, and hogs. A prime live hog at the Union Stock Yards, Chicago, will bring $10 per 100 pounds. Butter is so high in price that housewives notice it, and the Government has quit buying butter for free distribution under the food stamp plan. Eggs are up 7 cents a dozen at this writing over what they were a year ago. This means $2.10 a crate of 30 dozens, over what the same crate would have brought last year.

It is human nature for consumers to offer some resistance to these increases in prices. Under existing conditions, however, that resistance will be neglible. The only way to hold prices down under conditions of increased buying power and expanded demand is to get more product. Getting a lot more product just isn't in the cards. During the last war, the Department of Agriculture made every effort to stimulate production, and farmers responded as best they could, but in the end it was actually found that higher prices, which resulted in economical consumption, did more to spread the available supplies than anything else.

The New Deal is anathema to rising prices and is setting price ceilings lest there be inflation because of the terrific pace of government spending. It remains to be seen how long this scheme will work. It hasn't met the situation in Europe. Take a simple thing like an automobile tire. In Spain, the price of a new tire is cheaper than a used tire, because the price of the new tire is set by the government, whereas the used tire sells in a free market. The difference is that a man can buy an old tire, but he can't get a new tire for the reason that there is none.

—Frank L. Platt, American Poultry Journal, July-August, 1941.

Federal Aid for Feeds

From the standpoint of the feed industry, last week's announcement that the federal government would furnish credit for storage of commercial feeds on farms in the northeastern states is nothing short of sensational. Aside from the direct and immediate effect of the action on feed distribution and prices, there is an indication that the United States Department of Agriculture continues to develop a policy of control and regimentation not only for farmers themselves, but also to a considerable extent for industries closely associated with farming. This control is being extended not only to the marketing of farm products, but to the supplying of products needed on the farms.

Men who usually are well informed about Washington maneuvering say that this particular development has as many roots in practical politics as it does in sound economics. It is true enough that an emergency in transportation and supply might develop that would work a hardship on farmers in the Northeast in the matter of obtaining normal current requirements of feeds. It is to forestall such difficulties that the action apparently was taken.

An equally strong influence on agricultural department officials, however, was said to be a desire to placate disgruntled groups in the northeastern section of the country, who have for a long time and with increasing vehemence contended that all of the rich gravy being dispensed by the Department of Agriculture was going to the Middle West and the South, and that the Northeast, which also votes, was receiving only thin soup.

Be that as it may, the new policy of federal financing for farm reserves of feed undoubtedly is going to mean even greater stimulation of feed consumption and prices. Not all of the details of the plan have been published, but there seems to be little doubt in the minds of most men who have followed the development that the plan will be considerably extended. As it now stands, there are estimates that a million tons of feeds would be required to build up three months' reserves of feeds on farms of the northeastern area.

This action and other indications point definitely to a policy of strict agricultural control from Washington. In this, it is safe to say, the administration is not going to be blind to political advantages. The feed industry, in common with others closely allied with agriculture, is going to find itself more and more involved in federal farm policies.

—Feedstuffs, July 26, 1941.

Broodiness Costs Money

Tremendous progress has been made in breeding broodiness out of heavy breeds, but there is still a sufficient amount of broodiness left to be a heavy financial drag on the laying flock if not taken care of promptly. For every day a broody hen is allowed to remain on the nest, it takes approximately three days longer to break her of broodiness.

Make an inspection trip of the nests at night and confine all birds found showing evidence of broodiness.

Closing the nests at the night feeding time is a practical procedure if you are fortunate enough to have a hinged lighting board, but someone must be on the job to open the nests after dark or very early in the morning.

Broody coops, where hens may be confined in each pen, are most convenient except that outside shelters are more comfortable for the hens in extremely hot weather.

Some follow the practice of culling and selling all hens that show signs of broodiness, but this is not always a safe procedure because some heavy-laying hens go broody once, break up quickly, and return to production. It is advisable to place a celluloid leg band on each hen each time she goes broody. The second or third offense means a trip to market.

The length of time required for breaking up broodiness depends on the length of time the hen has been broody and individual characteristics. Broody hens should be given all the dry mash they will eat, plenty of water to drink, and not too much scratch grain. Special feeding to step up food intake is always helpful, particularly on the protein side of the ration.

—Roy E. Jones in New England Homestead.

1938-40 Hatchery Production

By B. H. BENNETT and ROBERT F. MOORE

Agricultural Marketing Service

Condensed from a U. S. D. A. Special Report

FROM an output that could be measured in thousands at the beginning of the twentieth century, the commercial hatchery industry has grown until it now supplies over 70 per cent of the total number of chicks raised on farms each year, and almost 100 per cent of those raised in commercial flocks. Even as recently as 1930, only 42 per cent of the chicks raised on farms came from commercial hatcheries, but by 1934 this proportion had increased to 47 per cent, by 1938 to 58 per cent, and by 1940 to 73 per cent.

Replacement of farm (home hatched) chicks by commercial hatchery chicks has brought striking changes to the egg and poultry industries. No longer is the chick production season limited by the instincts of nature and the vagaries of "broody" hens. Through the lengthening of the egg laying season by breeding and improved management practices, the commercial hatchery has made it possible for egg and poultry producers to secure chicks in quantity throughout the year.

As a result, the seasonal pattern of egg and poultry production in recent years has been drastically modified. Millions of pounds of fresh broilers and millions of dozens of fresh eggs are now coming to market during the fall and winter months, when 10 years ago storage stocks constituted the principal sources of supply. Because of these changes, and the important part that the hatchery industry has had in bringing them about, the need for information on production of hatchery chicks as an advance indication of trends in egg and poultry production has, in late years, received general recognition.

Hatchery Report Started in 1929

The first attempt to gather information on commercial hatchings was in 1929, when the U. S. D. A. started a Monthly Hatchery Report. The 1929 reports were issued for only three months — March, April, and May — and were restricted to data on eggs set and chicks hatched. In succeeding years, the inquiry to commercial hatcheries was expanded to include information on advance bookings, distribution, production of turkey poults, and sexing of chicks, and the period for which reports were issued was extended to

U. S. Department of Agriculture, Agricultural Marketing Service
(Chicks Produced by Commercial Hatcheries, 1938-40)

cover all months from January through July. Beginning with October 1932, a special report was released on hatchings during October, November, and December in those States in which the fall production of broilers was of primary importance. Finally, in 1940, the complete report was issued for each month of the year.

A significant step in the gathering of statistical data on the hatchery industry came in 1934, when the A. A. A., under the authority of the national hatchery code, made an enumeration of commercial hatcheries. A total of 11,405 commercial hatcheries, with a capacity of 276,287,000 eggs, was found. Reports of operations during 1934 indicated the production of 453,428,000 chicks. A similar enumeration made by the same agency for the year ending August 1, 1938, found 10,533 plants with a total output of 781,745,000 chicks. These two surveys supply a backgrond of basic information which, combined with data gathered in the monthly hatchery reports, enables long-time trends to be studied and measured.

Hatchings in Recent Years

Total commercial hatchings during the calendar year of 1938 are estimated to have totaled 781,667,000 chicks; in 1939, 900,303,000 chicks; and in 1940, 823,922,000 chicks. The number estimated to have been hatched by months in each of those three years and the monthly percentage distribution of each year's production, appears in Tables 1 and 2.

The commercial hatchery season normally runs from August through July of the following year, with a seasonal low point reached in August. In the three years of 1938, 1939, and 1940, the August hatchings averaged only 1.3 per cent of the average annual production of those years. The volume of hatchings appears to remain rather constant from August to December, after which it begins to increase rapidly, and reaches a sharp peak in the following April. Approximately one-fourth of the annual production of hatchery chicks is produced in April. Over two-thirds of the annual production is produced during the three months of March, April, and May, and approximately one-tenth during the months of June and July.

The production of hatchery chicks during the "off-season" (August through December) is small compared with the production during the other months of the year, being a little over 9 per cent of the total yearly production. When it is considered, however, that the greater part of this "off-season" hatch consists of chicks for broilers, and that the production of broilers was not important a few years ago, its significance becomes apparent. It represents a sale of between 75 and 100 million chicks during a period in which a few years ago relatively few chicks were hatched or sold.

TABLE 1—Estimated Monthly Hatchery Chick Production

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						Thousands							
1938	29,665	70,173	159,241	212,897	171,076	60,128	17,072	9,867	11,466	12,477	13,008	14,617	781,687
1939	40,282	84,457	182,437	238,944	197,426	70,094	18,497	13,317	14,184	13,765	13,042	13,858	900,303
1940	30,014	52,861	164,100	233,526	177,237	77,036	21,418	12,472	12,898	13,355	13,206	15,799	823,922

TABLE 2—Per Cent of Chicks Hatched Monthly

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1938	3.8	9.0	20.4	27.2	21.8	7.7	2.2	1.2	1.5	1.6	1.7	1.9	100
1939	4.5	9.4	20.3	26.5	21.9	7.8	2.1	1.5	1.6	1.5	1.4	1.5	100
1940	3.7	6.4	19.9	28.4	21.5	9.3	2.6	1.5	1.6	1.6	1.6	1.9	100

Geographical Variations

Considerable seasonal variation exists between the production of the principal geographic regions, in relation to the production of the entire country. Except for the Mountain States, all sections at some specific period during the year produce a significant proportion of the total annual production. For example, the 3-year (1938-40) average May production in the New England States and South Atlantic States was about 10 per cent of the total May production for all States, but the December production of these two regions averaged 40 per cent of the total December production of the United States.

This proportional variation is not the result of a corresponding change in volume hatchings, as the peak in these areas is reached in April as elsewhere, but is due to a heavy fall-chick demand from commercial broiler producers along the Atlantic Seaboard. Because of this demand, the seasonal decline in hatchings in the New England and South Atlantic States from April to December is considerably less pronounced than in any other section. On a quantitative, as well as proportional basis, the December production of hatchery chicks in the New England and South Atlantic States is the largest for any areas.

During the months of February-June, inclusive, the output of chicks by commercial hatcheries in the West North Central and East North Central States far exceeds the output of chicks by hatcheries in other sections of the country. During this 5-month period in 1940, hatcheries in the Midwest produced 54 per cent of the total 1940 production. But with most of the hatcheries in the middle west closed down after June, other sections of the country become important producers of baby chicks.

The production of hatchery chicks during the last half of the year is primarily for the commercial producers of broilers, but there are some exceptions. The principal exception is on the Pacific Coast, where a part of the "off-season" hatch is used for layer replacement in commercial egg-producing flocks. This is also true, but to a lesser degree, in New England and other commercial egg-producing areas.

Why Ship Chicks?

Not all states in each section of the country are important producers of baby chicks in the "off-season," nor by any means are all of the chicks hatched in a state during that time raised in that state. The interstate shipments of chicks are important throughout the year, but they are particularly so during the late summer, fall, and early winter months. Hatcheries producing chicks for "off-season" broiler production must have a large volume in order to keep down overhead and operating costs, and this requires a wider marketing area than during the flush season when there is a local demand for chicks for general flock replacement.

The principal states in which hatchery chicks are produced in volume during the latter part of the year are Connecticut, Massachusetts, and New Hampshire in the New England states; Pennsylvania and New Jersey in the Middle Atlantic states; Maryland, Delaware, Virginia, North Carolina, and Florida in the South Atlantic states; Indiana, Ohio, and Illinois in the East North Central states; Missouri and Kansas in the West North Central states; Texas, Oklahoma, and Arkansas in the South Central states; Arizona and Colorado in the Mountain states; and California in the Pacific Coast states.

TABLE 3—Monthly Percentage of U. S. Chick Production by Commercial Hatcheries

Geog. Div:	New England			Mid Atlantic			South Atlantic			E. N. Central		
	1938	1939	1940	1938	1939	1940	1938	1939	1940	1938	1939	1940
					Per Cent							
Jan.	17.8	14.4	13.1	12.5	9.5	9.2	13.3	14.9	16.6	12.1	15.9	18.0
Feb.	7.8	6.7	10.9	10.5	11.1	14.6	9.4	10.1	11.4	22.2	19.6	17.7
Mar.	4.4	4.6	5.0	10.6	9.2	10.1	7.8	7.5	7.7	25.9	26.3	25.8
Apr.	3.2	3.2	4.0	8.8	8.0	8.0	6.1	6.2	6.9	30.4	28.1	30.4
May	3.1	2.6	2.9	7.5	7.9	7.3	5.0	5.2	6.2	34.0	32.0	34.8
June	5.0	3.6	2.7	5.7	6.8	6.4	7.0	7.3	7.7	37.4	38.6	33.4
July	12.0	15.4	15.6	9.4	8.5	5.9	14.0	13.6	17.2	38.7	36.4	41.5
Aug.	17.1	17.2	20.3	8.3	9.9	10.9	16.2	18.2	24.6	27.6	25.4	16.0
Sept.	16.1	16.9	16.7	11.1	10.8	9.9	17.6	17.8	21.5	17.6	18.8	11.1
Oct.	20.6	17.8	21.2	9.8	11.4	6.2	16.4	20.2	30.6	17.4	17.5	7.0
Nov.	21.1	20.7	19.0	10.1	10.5	7.1	19.1	20.3	29.6	16.2	18.1	11.1
Dec.	20.7	23.0	17.8	11.0	10.4	9.8	18.5	17.5	24.4	16.3	16.2	16.8

TABLE 3—Continued

Geog. Div:	W. N. Central			South Central			Mountain			Pacific		
	1938	1939	1940	1938	1939	1940	1938	1939	1940	1938	1939	1940
					Per Cent							
Jan.	14.3	14.2	14.4	14.5	18.9	17.0	1.8	1.5	1.0	13.7	10.7	10.7
Feb.	17.9	19.6	15.4	19.1	18.6	14.8	2.3	2.7	2.6	10.8	11.6	12.6
Mar.	28.3	28.2	27.8	12.6	13.5	13.9	2.2	2.3	2.4	8.2	8.4	7.3
Apr.	35.2	36.6	33.9	9.9	10.1	10.6	1.8	2.1	2.0	4.6	5.7	4.2
May	40.3	40.7	39.0	5.8	6.2	5.8	1.8	2.0	1.6	2.5	3.4	2.4
June	34.8	34.1	41.9	3.5	3.8	3.1	2.2	2.4	2.0	4.4	3.4	2.8
July	9.5	10.0	9.5	6.2	5.9	2.2	.8	.9	.5	9.4	9.3	7.6
Aug.	6.7	8.6	7.9	8.9	8.0	6.1	1.0	.9	.8	14.2	11.8	13.4
Sept.	9.1	9.9	11.4	10.9	12.2	15.2	.6	.6	.8	17.0	13.0	13.4
Oct.	8.1	8.0	6.9	15.6	13.2	15.9	.4	.4	.6	11.7	11.5	11.6
Nov.	7.1	6.8	6.0	14.6	12.3	14.8	.3	.4	.2	11.5	10.9	12.2
Dec.	6.7	5.2	3.6	15.4	15.4	15.3	.3	.3	.2	11.1	12.0	12.1

The output of chicks during the last six months of the year in the New England, South Atlantic, and Pacific Coast states constitutes a much larger proportion of the annual production in these sections than does the output of hatchery chicks during the same period in other sections of the country. Many hatcheries in these sections operate during every month of the year, with very little variation in monthly output. In 1940, the New England hatcheries produced 31.8 per cent of their 1940 production during that time, the South Atlantic hatcheries 30.0 per cent, and the Pacific Coast hatcheries 21.0 per cent. By contrast, the output of hatcheries in the East North Central states during the last six months of 1940, while almost as large as the output of chicks in the South Atlantic states, was only 7.5 per cent of the total production for the East North Central states.

Broiler Industry Develops

The growth of the commercial broiler industry on the Eastern Seaboard has had a profound effect upon the production of "western" box-packed poultry, which prior to 1938 constituted the principal supply on all eastern markets. Prior to 1938, western box-packed broilers and fryers came to these markets in large quantities from August to October, and many of them were stored. During the past two or three years, the year-round eastern production of fresh-killed, barrel-packed broilers and fryers has been so large that the storing of "western" box-packed birds for the eastern market is now a more speculative undertaking. This change has, in turn, had an effect upon the hatchery industry of the Middle West by lowering the spring peak, which previously included a large number of chicks to be grown for broilers, fryers, and roasters for eastern markets.

❡ DR. RUSSELL MORSE WILDER, Mayo Clinic, advances the thesis that vitamin deficiency may underlie the wave of strikes which throttle production.

"I suspect" says he, "many many workers are led to make unreasonable demands because of inadequate vitamin B_1 in their diet. The other end," he adds, "of the capital-labor strife, paunchy industrialists, are probably irritated because of similar deficiency."

Eggs, with their vitamin B_1, could do a patriotic job.

—U. S. Egg and Poultry Magazine, August, 1941.

Unusual Poultry Diseases

Most of the unusual diseases, seen but rarely in a poultryman's flock, are a little economic importance. However, some, if allowed to spread, may prove costly. Fowl plague, for example, is a serious disease in Continental Europe. In the last quarter century, it has been found in the United States but once; its early report and vigorous control measures prevented serious consequence to our poultry industry.

Edema of the wattles (swollen wattles), in which the germ of fowl cholera may be involved, is not common, yet it may cause serious losses if it occurs in a breeding flock, since males are especially susceptible. Prompt segregation of those affected, and removing the wattles from all the males are beneficial.

In localities where this disease is prevalent, most breeders practice removing wattles from all males as a preventive measure.

Favus is a rare skin disease which lowers egg production in both chickens and turkeys. Symptoms include whitish areas on the comb and wattles, which spread to form large scaly patches. Affected birds should be destroyed, or if valuable, removed from the flock and treated with a mixture of 6 parts glycerine and 1 part iodine. Move the flock to clean quarters if possible, and clean and thoroughly disinfect the contaminated pens.

The air-sac mite is relatively harmless but often causes concern to the poultry farmer. These mites live in the air passages, especially in the air sacs where they appear as tiny yellow spots. There is no known treatment.

Necrosis of the beak in turkeys is rather unusual. Either the upper or lower beak may be involved. Finely ground mashes may cause packing, and inflammation with necrosis follows. Coarsely ground feed or pellets, or the use of a billing wire over each hopper for cleaning beaks, are recommended.

—C. D. Carpenter, American Poultry Journal, June-July, 1941.

❦ WE are all familiar with the saying "Don't kill the goose that lays the golden eggs," but few of us realize when we use it how it originated. According to the Hindu theory of creation, the Supreme Spirit laid a golden egg resplendent as the sun, and from the golden egg was born Brahma, the progenitor of the universe. The Egyptians had a similar story, and described the sun as an egg laid by the primeval goose, in later times said to be a god.

—Poultry (Austraila), May 10, 1941.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	June 1	July 1	June 1	July 1	Aggregate Jan.-July	June 1	July 1	Aggregate Jan.-July
North Atl.									
1930-39 (Av.)	97.5	82.5	77.4	55.0	48.6	323	45.1	37.7	283
1940	97.2	80.2	74.2	57.0	50.8	339	45.9	37.8	292
1941	95.4	80.1	76.2	56.9	51.1	353	45.8	39.1	304
E. N. Cent.									
1930-39 (Av.)	108.8	89.9	83.4	52.9	45.5	297	47.8	38.1	289
1940	110.8	91.3	83.5	55.8	47.8	310	51.0	40.1	306
1941	110.3	89.9	85.6	55.5	49.3	327	50.0	42.3	320
W. N. Cent.									
1930-39 (Av.)	117.6	98.3	90.1	50.8	42.5	273	49.8	38.2	288
1940	118.6	102.4	92.3	54.0	46.3	288	55.2	42.7	313
1941	116.1	100.0	91.5	54.4	47.9	308	54.4	43.8	328
South Atl.									
1930-39 (Av.)	58.6	47.8	46.6	46.4	40.8	284	21.9	18.8	148
1940	59.9	51.2	47.1	49.2	43.0	296	24.7	20.0	159
1941	59.4	47.9	45.7	48.9	44.0	311	23.1	19.9	161
South Cent.									
1930-39 (Av.)	64.4	51.2	49.0	45.6	38.5	276	23.2	18.9	156
1940	65.8	52.4	49.4	47.7	42.1	277	24.9	20.7	159
1941	62.7	50.7	49.6	49.8	44.5	306	25.2	21.9	170
Western									
1930-39 (Av.)	73.2	63.2	60.2	54.3	48.7	319	34.6	29.4	211
1940	73.7	62.4	58.9	54.2	48.4	331	33.8	28.6	216
1941	71.6	60.7	58.5	54.5	49.1	333	33.2	29.2	214
United States									
1930-39 (Av.)	84.0	69.2	65.0	50.6	43.4	289	34.6	27.9	215
1940	85.1	70.8	65.3	53.0	46.2	301	37.1	29.8	226
1941	83.2	69.0	65.4	53.5	47.6	319	36.6	30.9	236

With production over 4 billion eggs during June, or 11,114,000 cases, output in June was the largest for that month since 1930, when the number of layers was much greater. Production was larger than a year ago by the narrow margin of 0.3 per cent. So great is the volume of egg production, however, that this small fractional difference was equivalent to the substantial gain of 14 million eggs. Production was larger than last year in the North Atlantic, East North Central and South Central areas, but was smaller in the West North Central, South Atlantic and Western Divisions. It was above the 10-year (1930-39) average production in all areas except the Far West. This heavy June production of eggs was accomplished by 1.5 per cent fewer layers than last year, and 9 per cent fewer than in 1930.

Farm flock hens averaged over 15 eggs during June, the highest average laying rate of record for that month. The 5-year average rates for June show 13.74 eggs per hen for 1925-29; 13.92 for 1930-34 and 14.51 for 1935-39. In 1940 the figure was 14.79 and in 1941 it reached 15.07 eggs per hen. Several factors account for the high June rate of laying this year: The season is favorable, egg prices are high, and feed costs are moderate. An underlying factor is the long time trend toward better types of laying birds, which has gained added impetus during recent years.

The rate of production per hen continued high on July 1, being 3 per cent above the July figure of 1940 and 10 per cent higher than the 10-year July 1 average.

Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Production declines have been less than normal, which is doubtless a reflection of the unusually favorable feed-egg ratio. It is also significant that the number of layers on farms in the United States in June was 1½ per cent smaller than a year earlier, but on July 1 was slightly greater. June egg production was the largest for the month since 1930, totaling 13½ million cases. Production for the first seven months of the year exceeded same period last year by about 3 per cent. Receipts at Central Western packing plants have been running about 50 per cent above the same period last year, while Pacific Coast production appears to be about 5 per cent less. A comparison of weekly receipts at eastern egg auctions shows a gradual decline from 21 per cent over last year to 5 per cent at the close of the month. Receipts on the four markets were well ahead of last year the forepart of the month, but dropped well below the week ending July 26. This condition very likely reflects the heavy Federal Surplus Commodities Corporation purchases in the Midwest during this period.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	June 1941	June 1940	June % change	Jan. to June, Inc. 1941	Jan. to June, Inc. 1940	Jan. to June, Inc. % change
New England	33,703	31,540	+ 6.9	296,368	270,934	+ 9.4
Middle Atlantic	201,890	203,756	− 0.9	1,358,808	1,294,259	+ 5.0
South Atlantic	19,164	22,226	−13.8	150,368	182,713	−17.7
East North Central	395,117	363,266	+ 8.8	2,114,131	2,078,426	+ 1.7
West North Central	745,188	923,492	−19.3	4,542,111	5,129,266	−11.4
South Central	6,676	6,446	+ 3.6	67,106	71,831	− 6.6
Mountain	18,708	22,215	−15.8	135,417	216,599	−37.5
Pacific	7,024	21,032	−66.6	50,819	256,083	−80.2
Miscellaneous	263	906	−71.0	2,474	3,237	−23.6
TOTAL	1,427,733	1,594,879	−10.5	8,717,602	9,503,348	− 8.3

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic Section	June 1941	June 1940	June % change	Jan. to June, Inc. 1941	Jan. to June, Inc. 1940	Jan. to June, Inc. % change
New England	1,479,408	1,814,654	−18.5	4,029,893	5,835,607	−30.9
Middle Atlantic	7,800,935	6,293,673	+23.9	25,620,489	20,288,741	+26.3
South Atlantic	3,993,178	2,259,654	+76.7	18,720,017	12,971,518	+44.3
East North Central	2,297,366	2,795,934	−17.8	16,580,811	18,028,715	− 8.0
West North Central	9,564,477	12,451,343	−23.2	54,528,909	66,890,494	−18.5
South Central	1,519,135	1,217,388	+24.8	10,070,747	10,232,499	− 1.6
Mountain	48,292	196,351	−75.4	2,498,504	2,882,028	−13.3
Pacific	588,367	395,197	+48.9	7,297,088	9,134,700	−20.1
Miscellaneous	0	57,680	−	0	128,680	−
TOTAL	27,291,158	27,481,874	− 0.7	139,346,458	146,392,982	− 4.8

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	1941	1940	% Change from Previous Week	% Change from Last Year
July 5	62	51,851	56,647	−7.60	−8.47
July 12	61	53,845	57,372	+2.76	−6.15
July 19	62	51,233	53,917	−4.85	−4.98
July 26	61	47,641	52,315	−6.46	−8.93

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
July 5	20	24,532	−5.70	+21.26
July 12	29	30,689	−0.38	+14.97
July 19	29	27,441	−0.68	+ 5.71
July 26	25	20,061	−1.47	+ 8.97

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1941	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1941	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1941	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) % Chg.
July 5	222,619	128,394	+73.39	3,321	3,134	+ 5.98	1,444	813	+77.58	1,679	2,162	−22.37
July 12	195,325	134,214	+45.53	2,985	3,005	− .65	1,291	822	+57.04	1,557	2,040	−23.70
July 19	192,501	129,577	+48.56	3,676	3,354	+ 9.61	1,691	1,140	+48.29	1,845	2,075	−11.08
July 26	171,704	109,774	+56.42	3,749	3,305	+13.41	1,903	1,262	+50.76	1,721	1,932	−10.96

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1940	Dozens of Eggs to Buy 100 lbs. of Laying Ration 10-Yr. Avg. 1931-40	Price of Fresh Graded Firsts (Dollars) 1941	Price of Fresh Graded Firsts (Dollars) 1940	Cost of Ration per 100 lbs. (Dollars) 1941	Cost of Ration per 100 lbs. (Dollars) 1940
July 5	5.35	7.34	6.93	.266	.159	1.427	1.170
July 12	5.53	7.45	7.05	.262	.158	1.451	1.182
July 19	5.44	7.57	6.81	.262	.158	1.429	1.199
July 26	5.30	7.61	6.68	.266	.157	1.410	1.199

—Compiled from U. S. D. A. market reports.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
July 3	7.2	8.7	7.5	.304	.21	.228	2.20	1.825	1.71
July 11	7.5	8.0	7.5	.302	.231	.223	2.28	1.84	1.68
July 18	7.7	8.3	7.5	.299	.224	.222	2.31	1.86	1.645
July 25	7.8	9.1	6.9	.295	.208	.23	2.29	1.895	1.595

—Compiled by N. Y. State Department of Agriculture and Markets.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
June	7.00	9.32	8.27	7.24	10.16	6.89
January-June	7.45	9.70	7.70	8.08	9.95	7.49
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

Egg markets turned irregular following the break at the close of June, which appeared to be a natural reaction to an extended period of advancing prices through the surplus season. However, the U. S. Department of Agriculture reports that losses sustained the first half of July were largely recovered at the end of the month with principal grades on some markets showing net gains as high as 2 cents. Resumption of Government buying of shell eggs was a supporting factor, as well as continued acceptances of frozen eggs. Chicago October futures, which had advanced to over 30 cents in June, declined to 27.15 cents by July 17 under the influence of anticipated "price ceilings" and increased margins. At this point, confidence began to return, and options moved above 29 cents, but turned easy with downward trend at close of the month. Wholesale prices for the month ranged 9 to 11 cents above the same period last year, approximately the same margin that existed during June.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	July 5	July 11	July 18	July 25	July 25 '40
Mixed Color Firsts	27¼	27¾	26¾	27	16½
Nearby and Midwestern White Premium Marks	30¼-32¾	31-33½	30-32½	33-35½	20½-23
Nearby and Midwestern White Exchange Specials	29½-29¾	30½	29¼-29½	31¼-32½	20
Pacific Coast Specials	35½-36	35½-36	35½-36	37-37½	27½-28
Nearby and Midwestern Brown Specials	30	30½	29½	29½-30½	21-21½

Mid-Month Farm Prices of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1	23.2						

Government Purchases

Federal Surplus Commodities Corporation purchases from July 1 to 30 inclusive, totaled 316,277 cases compared with 160,000 cases during July a year ago. Purchases this year to July 30 total 1,189,173 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Purchases of Eggs by the U. S. Department of Agriculture

Week ending as of 1941	Shell		Frozen	Dried
	1940	1941	1941	1941
	Cases	Cases	1,000 pounds	1,000 pounds
May 3	34,099	141,756	—	—
10	55,852	137,606	—	—
17	80,591	103,233	12,642	618
24	254,296	42,000	1,247	100
31	260,475	35,600	1,638	157
June 7	263,265	25,201	1,379	145
14	233,560	10,400	1,776	350
21	199,261	2,800	1,801	100
28	161,895	—	1,283	140
July 5	40,274	5,980	13,810	1,583
12	13,385	50,000	2,683	210
19	34,289	140,403	13,835	1,930
26	49,519	91,695	8,616	660

Eggs in Storage

Net increases in the 35 markets June 28 to July 26 were approximately 22 per cent less than during the same period last year and in the four markets the volume stored fell off fully 40 per cent from a year ago. Storage holdings on July 1 total 6,451,000 cases, a decline of 14 per cent from July 1 last year. June 1 holdings were 10 per cent less than on the corresponding date last year. In view of the current trend, as shown by movement in the four and 35 markets, an even greater decline may be anticipated on August 1. Of the total holdings on July 1, 327,000 cases of shell eggs were held by Government agencies, compared with 933,000 cases on July 1, 1940. There was an apparent decline in U. S. holdings of a million cases on July 1, from a year ago, but taking into consideration differences in holdings of Government agencies on that date, the decrease in commercial holdings was approximately 450,000 cases.

Storage Holdings of Eggs

Kind	July 1 5-Year Avg. 1936-40	July 1 1940	June 1 1941	July 1 1941	% Change July '40-July '41
		Thousands			
Shell Eggs (cases)	7,270	7,513	5,375	6,451**	–14.2
Frozen Eggs (lbs.)	141,377	150,366	142,065	178,367***	+18.6
Frozen Case Equivalent (cases)*	4,039	4,296	4,059	5,096	+18.6
Total (cases)	11,309	11,809	9,434	11,547	– 2.3

* Frozen eggs are converted on the basis of 35 pounds to the case.
** Includes 326,780 cases owned by the Federal Surplus Commodities Corporation.
*** Includes 14,672,000 pounds owned by the Federal Surplus Commodities Corporation.

Poultry Meat Prices

Mid-Month Farm Prices of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3	16.3						

Live poultry markets were fairly steady throughout July, except at New York, where prices fluctuate somewhat because of varying receipts, but net price changes were small. Fowl held steady with prices ranging 4 to 6 cents above last year. Receipts of leghorn fowl are becoming more plentiful, a normal development at this season and prices declined 1 to 2 cents during the month. Prices on young stock varied only slightly and ranged from 1 to 3 cents over last year, whereas during June prices were 1 to 2 cents under June 1940. Receipts of poultry at Central Western primary markets during the month exceeded those of July last year. Except for an occasional week early this year, these receipts have run considerably lighter than for the corresponding period a year ago. The increase is made up of young stock, as receipts of fowl continue well below a year ago. The tendency to hold fowl on the farm longer than normal continues.

Live turkey prices continue about 6 cents higher than for the corresponding period last year. Young hens and toms are selling at 19 and 16 cents, respectively, at Chicago. On eastern markets, young hens were selling at 23 to 25 cents and young toms at 18 to 19 cents.

Dressed poultry markets were about steady during July with trading generally quiet. Fresh killed light weight fowl at New York declined 1½ cents, while 5 pounds and heavier advanced 2½ to 3 cents. Fresh killed barrel packed chickens 2 to 4 pound sizes were practically unchanged from

the close of the previous month, but 5 pound sizes were 4½ cents lower. Box packed chickens showed no material change excepting heavier weights, which were 1 to 2¼ cents lower. Frozen chickens were 1 to 3 cents lower on medium and larger sizes. Frozen turkeys advanced 1 cent on hens and 2½ cents on toms.

—Comment from U.S.D.A. Monthly Egg and Poultry Market Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	July 1 5-Year Avg. 1936-40	July 1 1940	June 1 1941	July 1 1941	% Change July '40-July '41
		Thousand Pounds			
Broilers	5,494	4,842	4,285	4,923	+ 1.6
Fryers	2,596	1,774	4,277	3,595	+102.0
Roasters	6,734	4,613	14,052	12,062	+161.4
Fowls	12,141	16,247	14,944	14,061	– 13.5
Turkeys	20,122	36,724	30,427	28,032	– 23.7
Ducks	4,848	5,028	3,549	6,654	+ 32.3
Miscellaneous	12,758	10,598	10,072	11,698	+ 10.3
Unclassified		2,510	5,827	4,849	+ 93.1
Total	64,693	82,336	87,433	85,874	+ 4.2

Hatchery Operations

Production of baby chicks by commercial hatcheries in June was the largest for that month on record, the U. S. Department of Agriculture reports. The output was estimated by the Agricultural Marketing Service to have been 130,183,000 chicks, compared with 77,036,000 chicks in June 1940—the previous high record for the month. The production of chicks during May and June exceeded the output of the same period last year by 98,329,000 chicks.

With the exception of April, the output of chicks by commercial hatcheries has been a record every month so far this year. Production for the first six months is estimated at 912,869,000 chicks, compared with 734,774,000 chicks during the same period last year. Indications are that the hatchery industry will produce about a billion chicks in 1941, compared with the previous record of 900,303,000 in 1939.

Compared with June a year ago, the output of chicks was higher in all producing areas. In the East North Central and West North Central States, which normally produce about 70 per cent of the chicks hatched in June, increases of 64 per cent and 74 per cent, respectively, were indicated. Output increased 108 per cent in the South Central States, 101 per cent in the New England States, 83 per cent in the Pacific Coast States, and 81 per cent in the Mountain States. An increase of 55 per cent occurred in the South Atlantic States and 37 per cent in the Middle Atlantic States. Many hatcheries operating in June were closed during June a year ago.

The production of baby chicks normally drops sharply after June, the production in July during the past three years averaging about 18,998,000 chicks. The favorable conditions prevailing in the poultry industry, however, will probably result in a fairly strong demand for chicks during the remaining months of the year. The feed-egg ratio is very favorable to producers, and many commercial poultrymen who have the facilities and who are located in the regions of mild climates will probably continue to purchase chicks for egg production.

The number of eggs set during June was 83 per cent larger than the number set in June last year. As the reported increase is larger than the increase shown for the June hatch, a comparatively large July hatch is indicated. Hatcheries also report a large increase in advance orders over July 1 last year, the increase amounting to 72 per cent.

The division between light and heavy breeds hatched in June showed no change from June last year. Approximately 30 per cent of the chicks hatched during the month were of the light breeds and 70 per cent were of the heavy breeds. Hatcheries reporting chicks sexed showed that 138 per cent more chicks were sexed in June this year than during June last year. As this increase is almost double the increase in the hatch, a very strong demand for chicks for egg laying purposes is indicated.

Reports from 71 hatcheries showed 61 per cent more turkey eggs set and 44 per cent more poults hatched during June than in June 1940. Advance orders on July 1 were reported by 38 plants to have been 318 per cent above those at the same time last year.

—Comment from U. S. D. A. Hatchery Report.

Eggs Set by Commercial Hatcheries

Geographic Divisions	June 1938	June 1939	June 1940	June 1941	% chg. from June 1940	Jan.-June Inc. 1940	Jan.-June Inc. 1941	% chg. from 1940
			Thousands					
New England	3,093	3,382	3,059	4,160	+ 36	51,210	64,657	+26
Middle Atlantic	3,343	4,065	5,965	7,754	+ 30	98,530	108,254	+10
South Atlantic	5,273	5,623	6,594	11,474	+ 74	79,024	104,383	+32
E. N. Central	18,941	23,254	26,307	46,826	+ 78	342,692	409,041	+19
W. N. Central	12,994	17,194	23,967	51,289	+114	355,376	460,723	+30
South Central	1,837	1,812	2,323	4,019	+ 73	103,711	136,483	+32
Mountain	762	1,141	752	1,406	+ 87	22,687	27,367	+21
Pacific	3,303	3,386	3,155	4,827	+ 53	55,183	68,165	+24
U. S.	49,546	59,857	72,122	131,755	+ 83	1,108,413	1,379,073	+24

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	June 1938	June 1939	June 1940	June 1941	% chg. from June 1940	Jan.-June Inc. 1940	Jan.-June Inc. 1941	% chg. from 1940
			Thousands					
New England	2,357	2,349	2,058	4,137	+101	34,451	46,434	+35
Middle Atlantic	3,166	4,423	4,919	6,739	+ 37	63,472	72,073	+14
South Atlantic	4,723	5,131	5,964	9,244	+ 55	56,623	75,585	+33
E. N. Central	22,375	26,447	25,701	42,150	+ 64	215,584	261,313	+21
W. N. Central	21,913	25,416	32,321	56,239	+ 74	238,788	297,005	+24
South Central	1,526	2,157	2,363	4,915	+108	73,346	95,513	+30
Mountain	1,376	1,736	1,505	2,724	+ 81	14,575	18,028	+24
Pacific	2,692	2,435	2,205	4,035	+ 83	37,935	46,918	+24
U. S.	60,128	70,094	77,036	130,183	+ 69	734,774	912,869	+24

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked July 1	% Light Breed hatched		% Heavy Breed hatched		Sexing
	% change from July 1, 1940	June 1940	June 1941	June 1940	June 1941	% change from June 1940
New England	+ 70	4	3	96	97	+112
Middle Atalntic	+178	27	19	73	81	+ 2
South Atlantic	+144	11	6	89	94	+210
E. N. Central	+ 40	28	27	72	73	+ 76
W. N. Central	+188	40	46	60	54	+216
South Central	+166	18	17	82	83	+208
Mountain	+418	38	37	62	63	+ 61
Pacific	+ 28	47	47	53	53	+240
U. S.	+ 72	30	30	70	70	+138

IT IS reported that the alleged friendship between Russia and Germany (before the present conflict) was assumed only. A story comes from the Balkans that a large consignment of Russian eggs en route to Germany, was held up by the Russian authorities until they went bad. They were then allowed to proceed to Germany bearing the label "Here is one more proof of Russo-German friendship."

—Australasian Poultry World, May, 1941.

MITES and lice that pester Michael Reuter's chickens in Kosciusko county, Indiana, are destroyed by vaporizing 40 per cent nicotine sulfate on a hot stove. "I close the house so vapors will not escape," he said, "then pour half an ounce on the brooder stove for a house 10 by 12 feet. That destroys vermin."

—Capper's Farmer, August, 1941.

Cutting Down the Risk of Fire

Personal observation over more than a quarter of a century suggests that the two greatest risks in the poultry business are disease and fire.

Much attention constantly is given to the former hazard, but seldom is even slight recognition given to the latter. Every spring fires are all too frequent, and aggregate losses must be very great. The writer believes that most of these losses are preventable, and are largely the result of either ignorance or gross carelessness, or both.

In the old days, operations usually were conducted on a very limited scale, units were small, and, should a fire occur, the loss was often negligible. Today, our plants frequently are huge enterprises, buildings often are multi-story and a fire may not only occasion a large capital loss, but destruction of life itself may result.

Just recently, two very serious poultry plant fires have occurred in this vicinity. Both started from oil-burning brooders. In recent years, more oil brooders have been sold than any other type. While some of this equipment may be considered reasonably safe, much of it, in my judgment, has little to offer but price appeal.

The following suggestions are offered in the hope that many needless fires may be avoided:

1. Select safe equipment, especially brooders.
2. Practice careful management.
    a. Store oil and gasoline away from main buildings.
    b. Destroy oily rags or waste.
    c. Use only properly constructed chimneys.
    d. Use non-inflammable litter, such as sand, near brooders.
    e. Permit no smoking in poultry houses.
    f. Permit only adequate and proper electrical wiring.
    g. Mow and remove grass near permanent buildings.
    h. Space new units in reference to residence and older buildings, considering wind direction.
    i. Provide accessible fire extinguishers.
    j. Provide large nearby water storage.
3. Carry adequate insurance coverage.

—Luther Banta, Poultry Tribune, July-August, 1941.

HAZEL WEIR, Evanston, Illinois, found a profitable way to market eggs for Easter. She decorates eggs with faces and clever hats and collars, and thus dispenses a goodly number, delighting her customers.

—U. S. Egg and Poultry Magazine, August, 1941.

NATIONAL POULTRY DIGEST

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SEPTEMBER 15, 1941

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Publishing Co., Inc., Hanover, Pa.

Aim of Digest is to Keep Our Readers Informed

A few months ago, a reader took us to task for the publication of a trade journal editorial with which he disagreed strongly. While it is our aim to be highly selective in the choice of material for publication in the POULTRY DIGEST, we do not believe in the suppression of ideas and opinions simply because they do not agree with our own.

Since the establishment of the POULTRY DIGEST, we have published quite a few articles, editorials, and talks with which we did not agree, but we would not be functioning as a digest if we did not follow such a policy. In the review of poultry research, we are frequently astounded at the conflicting results that are obtained by scientists in different parts of the country, yet we consider it our obligation to record these conclusions for our readers in carrying out our promise to keep them informed of new ideas and developments in the poultry industry.

More Views Wanted on Laying Test Feature

The number of readers who responded to our invitation last month to tell us whether or not we should restore the monthly tabulations of the egg laying tests as a regular feature was so small that we are going to reserve final judgment on this matter for another month.

As the situation now stands, there is a slight majority in favor of the resumption of this department. A California poultryman says that the POULTRY DIGEST is the only poultry publication he reads, so he would not have an opportunity to see the laying test results. A West Coast poultry extension specialist makes the same point. A poultry department head on the Pacific Coast tells us that the laying test results are used in studying production and mortality in relation to management practices, also that the Digest is the only one of the popular poultry publications that is permanently bound in the college's library. A Midwest poultry department head, however, sees no value in publishing the laying test reports in the Digest, and a Pennsylvania subscriber terms them as so much "free advertising for a few breeders."

What is your opinion? Should we restore test reports as a monthly feature? Our final decision will be based upon the replies which we receive during the next three weeks.

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Published on the 15th of each month at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Roland C. Hartman, editor and mgr.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas.; Paul F. Worcester, assoc. editor. Single copies, 25 cents. Back copies, 40 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Binder holding 12 copies, $1.25 postpaid in U.S.A. Entered as second-class matter Jan. 20, 1939, at the post office at Hanover, Pa., under the act of March 3, 1879.

Vol. 3, No. 33 September 15, 1941

Poultry and Egg National Board's First Annual Progress Report

By HOMER I. HUNTINGTON
Manager, Poultry and Egg National Board
Chicago, Illinois

Condensed from a Report

A YEAR ago at the I. B. C. A. convention in St. Louis, the Poultry Planning Committee, which was appointed following the World's Poultry Congress, officially organized the Poultry and Egg National Board. Eighteen Directors chosen by national and regional organizations representing all branches of the poultry industry, and five Directors-at-large, also from the industry, made up the Board. The required starting budget of $30,000 was pledged. It was generally agreed that most of this money would be needed for organizing a program, and that a much larger sum was essential to carry out a worthwhile educational program.

Board Gets Results

This report will cover very briefly the Board's activities through its first 8 months of actual operation, during which time real headway was made, not only in laying the foundation for a consumer program designed to increase the consumption of poultry and eggs, but also in actually putting the program into effect and getting results. We believe that behind the National

Presented to the Directors of the Poultry and Egg National Board, in annual meeting, Kansas City, Mo., July 23, 1941

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Board's cooperative effort stands a united industry ready to boost poultry products.

For several successive years, poultry products were produced in excess of demand. This resulted in lower prices. The causes for the surplus condition are many and no attempt will be made to discuss them, except to say that the poultry industry could not hide completely behind the economic cause that lack of consumer buying power was the only reason for the surplus. A hundred and thirty million people were eating—some what they wanted, others what was advertised, and still others whatever they could afford or what was given them. During this time, the demand for some foods more expensive than poultry products was on the increase. Perhaps it was not so much a case of lack of purchasing power as it was the lack of knowledge of knowing what to buy, or the inability to purchase quality products, that helped build surpluses.

Meeting the Competition

Advertising and merchandising of many foods has changed the eating habits of consumers in all income levels, and those food producers and manufacturers who took advantage of these changes and streamlined their services to consumers did so largely at the expense of unorganized industries such as ours.

Every director on the National Board was fully aware of the fact that the poultry industry was starting from scratch against tough competition and, because of a limited budget, was unable to meet this situation with similar tactics, that of national advertising. No time was lost, however, in developing an educational program which was to enlist 5½ million producers for action.

With the support of the poultry press, college poultry departments and extension services, departments of agriculture, marketing organizations, packer, processor, distributor groups, and manufacturers of feed, equipment, and supplies, considerable advance has been made in bringing to the consumer front the knowledge of the nutritive value, economy, and abundance of poultry products and their importance to the nation's well being.

Given Laboratory-Kitchen

The office of the Poultry and Egg National Board was opened the middle of October, 1940, in the Chicago Mercantile Exchange Building, 308 West Washington St., Chicago, Ill., next to the Institute of American Poultry Industries, and directly opposite the Laboratory-Kitchen. The first encouraging evidence of industry cooperation came from the president of the Institute and a director of the National Board, Frank Priebe, when he announced that the directors of the Institute had voted to turn over to the National Board their completely equipped Laboratory-Kitchen, consumer library, and files, without any cost, that the Institute would discontinue consumer education work, and would cooperate wholeheartedly with the Board. With the acceptance of this generous gift, it was possible to include at once a phase of the program which was thought possible only as a second year project.

The Board's personnel includes, beside the manager, Mrs. Kathryn B. Niles, home economist, and a secretary. Part time help has been employed on occasion.

Budget Balanced

The budget, based on a nine month's period, October 1940, through June 1941, and on the actual cash on hand ($25,000) was approved by the Board. Since most items in the breakdown had to be estimated, the budget could at best serve as a guide. Certain items were overdrawn, others showed balances. The treasurer's report shows a total balance on hand as of the end of the fiscal year, June 30, 1941.

Creating a Market

An egg a day — chicken in every pot—turkey for the everyday feast—is an energetic program. The pendulum, however, is beginning to swing in the direction of poultry products. Consumers are thinking of eggs as a protective rather than an expensive food. More people are enjoying chicken because they can afford to buy what they want, when they want it, and turkey is no longer considered only for the winter holidays.

An Industry on the March

The poultry industry is definitely on the march. Now is the time for everyone to get behind the National Board in its program to keep the pendulum swinging in the right direction, so as to gather sufficient momentum against the time when the present emergency is over and the need for organized efforts becomes even more apparent.

The program plan which was outlined by the Board and distributed widely to many cooperating agencies in every state has helped in developing an industry "consumer complex." A review of the educational programs as published in poultry and trade papers during the past months shows the growing tendency on the part of producer, breeder, hatcheryman, shipper, and distributor organizations to include as part of their programs discussions on ways and means of increasing the demand for poultry products, and the closely related subject of quality improvement. This is a good sign, and is definitely in line with our policy to present to the industry better balanced programs.

Many consumer talks were made

by our directors, college and marketing men, allied industry representatives and producers, and many other talks were given by nutritionists, food directors, public health officials, professional men, and editors, which provided industry people with facts about our products which should be presented to the consumer. New talents and interests were thus discovered.

Perhaps the spirit of cooperation which was developed during the past years may prove to be among the important benefits of our program, because with people and organizations pooling their mutual interests and cooperating on constructive programs, there is no limit as to what may be accomplished.

New Interest in Poultry

To keep the members of the industry informed of the progress of the Board, the Reporter was published each month and sent to a mailing list which is now close to 8,000. Those who read its columns are aware of the new interest shown in poultry products as expressed not only by industry individuals and associations, but also by nutritionists, foods editors, and commentators who daily reach vast consumer audiences. It should serve as a reminder that our industry, through the National Board, is performing a service to the consumer in line with what is expected of industries which are furnishing the nation with an essential food.

Personal contacts with groups and individuals supplemented by correspondence were important factors in building the program.

Producer meetings addressed	27 in 15 states
Dealer, shipper, manufacturer, retailer meetings, addressed	9 in 7 states
Conferences with college and marketing groups	30 in 15 states
Individual contacts re Board's program	350 in 20 states
Personal letters re Board's program	1,000 in 38 states
Mimeograph letters re program	2,000 in 48 states

These contacts constitute one of the most important phases of the Board's activities and lead to many voluntary resolutions being sent in endorsing the work of the Poultry and Egg National Board. It is interesting to note that hundreds of letters have been received calling attention to the fact that here or there eggs or poultry meat were forgotten, condemned, misquoted, or put at the bottom of the list. It is equally encouraging to receive hundreds of letters, clippings, or photographs showing where our products were featured, perhaps for the first time. The industry is learning to fight for recognition for its products.

Consumer Information

Consumers can be reached most directly and economically through three channels — newspapers and

magazines, radio, and lecture demonstrations. These channels were developed to a high degree of efficiency.

Newspapers: The food page of the average metropolitan newspaper is one of the most widely read sections. From these columns women receive suggestions for meal planning and information on nutrition. Dietitians, home economics teachers, cafeteria managers, and public health workers follow these articles for timely trends. Students in home economics, likewise, get valuable information.

Nearly 300 daily newspaper food editors, in all 48 states receive releases (and often photographs) on poultry products each month. With an estimated circulation of nearly 20 million, the importance of this service is evident. A recent questionnaire sent to the foods editors indicates that the type of material prepared by the Board is attractive, usable, and instructive. Tear sheets received also indicate wide usage. Aside from the daily papers, approximately 3,000 weekly papers receive our material through an agency.

Magazines and food journals: Food editors of these publications are asking for special articles and photographs on poultry products. The significance of this service is evident.

Radio: The Board sends monthly releases to nearly 800 radio program directors. Over 400 stations have radio "homemaker" commentators who find our material easy to use. Requests are being received for literature which can be mailed to their listeners.

Lecture Demonstrations: Nearly 800 home service directors of the public utility companies receive monthly releases, useful in demonstrating before cooking classes which are held in most cities in all states. Here again, the Board offers a practical service to directors who have personal contacts with thousands of housewives. The fact that the industry is supporting a national organization which can disseminate authentic information on poultry products immediately creates a new interest in our products, both on the part of the demonstrator and her audience. This again demonstrates that an industry's importance is judged by the type of service it has to render.

Home Economics

As the Board's program develops, more attention will be given to contacting home economics departments of our colleges and universities. Here food research is going on. The Board should know what work is being done on eggs and poultry meat. More than 1,000,000 young women are today enrolled in home economics courses. With proper instruction and facilities, those future teachers, nutritionists, dietitians, and housewives can help stress the importance of eggs and poultry in the American diet.

Poultry Literature

Poultry literature is an essential part of any consumer campaign. It should be designed for the housewife, the teacher, the student, the physician, the retailer, and the consuming public in general. Lack of sufficient funds curtailed this service. As finances permit, suitable material will be developed.

The egg recipe carton inserts prepared by the Board proved to be very popular because of their attractiveness, low cost, and general utility value. Nearly a million of the inserts have already been purchased and distributed. An inexpensive folder featuring the nutritive value and care of eggs was printed. Over 100,000 copies of this folder have been purchased by state poultry organizations and marketing services for general distribution at consumer meetings. It is this type of material which proves most practicable in view of the fact that it must be given free to consumers and therefore must be available to industry organizations at low cost.

Egg Moving Picture

In cooperation with the Illinois Poultry Council and the State Department of Agriculture, the Board prepared a moving picture in technicolor featuring eggs from the producer to the consumer. The title of the picture is "Nature's Defense Package." The narration carries a fascinating story which should help elevate the friendly egg to a well deserved place among natural protective foods. In preparing the picture, particular pains were taken to make it applicable to all states.

Financing in the Future

Since the method of financing the Board for the year 1941-1942 has been changed, whereby at no time will we have a fixed income upon which to plan a budgeted program, recommendations are made with the idea that if and when funds are available, certain things will be done. I therefore recommend that our last year's budget be revised and used as a guide, and that additional services be undertaken as finances permit. Considerable work must yet be done to extend the financing plan and put it into effective operation.

With these thoughts in mind the following recommendations are made.

1. **Increase personnel** to more efficiently handle public relations and publicity. This will help to bring greater support through the financing plan.

2. **Extend our program** to include a service to U. S. Army Cooks' and Bakers' Schools similar to the effective program being carried on by the National Live Stock and Meat Board. We are fortunate in having such men as Messrs. Gwin, Shackelton, Cruzen, and Hackett, who are not only interested in the procurement of poultry products, but also in stressing food values, preparation, cooking, and serving. The value of this service is apparent when we consider that for every 50 men in the army there is one man in the mess, and that there are 60 Army Cooks' and Bakers' Schools.

3. **Public Schools.** Our industry needs information adaptable for use in our schools. Nutrition charts, manuals, etc. for teachers are needed.

4. **Research Committee.** Authoritative information on the nutritive value of eggs and poultry meats is essential. A committee of research workers from our colleges and home economics departments should be appointed to gather material, suggest research projects, etc.

5. **Establish regional offices** of the Board in the east, west, and south, with trained Home Economists in charge to develop greater coverage in consumer work in those areas.

6. **Prepare film strips** or slides covering cooking, preparation and serving of eggs, turkey, and chicken, for use in schools, women's clubs, etc.

7. **Displays, Exhibits.** For food shows, conventions, etc.

8. **Literature.** Manual. A handbook of poultry from production up to consumption—general outline for coaching on purchase, etc. Not a recipe book. Marked changes in poultry marketing are almost entirely unavailable to teachers and important key people. The availability of this information to them would be a definite stimulus to poultry and egg consumption. Manual of like kind on eggs and turkeys.

Series of recipe folders — carrying not more than 6 to 8 recipes in each—based on meal planning practice and logic, i.e., a folder on beverages, another on breads, salads, main dishes, sauces, desserts, lunch box logic, party suggestions, etc.

Charts to guide home demonstratoin agents, teachers, etc., in cutting up of poultry, temperatures, etc. Food value charts.

9. **Laboratory-Kitchen.** Provision for expanded use of laboratory-kitchen to acquire facts for promotion and education, to supply a steady stream into the publicity releases, to the end that eggs and poultry will be used more frequently and with greater satisfaction.

10. **Photograph Service.** Releases from this department when accompanied by photograph are highly favored and widely used. Since the primary object of these releases is promotion or, basically, selling, and since selling is making it easy for people to buy, it is recommended that photographic service be increased to maintain steadier public "wantage" of our products—thus minimizing the too-long intervals between the only twice-yearly photographic service, which permit a cultivated market to wander too far away before restimulating it.

11. **More representative activity** in American Home Economics Association and other organized educational groups. We cannot afford to act as paupers amongst prosperous service-giving industries and expect much in the way of cooperation.

12. **College Cooperation.** Planned and sustained effort to stimulate the interest of university and college home economics department heads in the promotion of eggs and poultry.

Cooperative studies should be set up between the Poultry and Egg National Board, representing various branches of the industry, and the agricultural colleges.

13. **Research.** Institutional Service. Planned and organized effort and facility to promote better cookery service of poultry in restaurants. Restaurants are ready-made markets from which people

expect good chicken and turkey, but this fine potential source of highly increased sales is stopped dead by guest disappointment.

Hospitals, dormitories, and school lunch rooms are important ready-made markets for our products. These require tested quantity recipes for sound nutritional menus. To service them adequately requires additional facility in the home economics department of the Poultry and Egg National Board.

More specific assay and nutritive analysis—for unit measure in poultry. Effect of various cooking processes on vitamins.

More specific assay and analysis of eggs —and the relation and effect of cooking methods.

Lack of such information for consumer education renders our work and effects unequal in competition with other foods, their research having given them powerful sales facts.

Other Promotional Groups

This report would not be complete without recognizing the splendid consumer work which is being done by producers and industry groups. The New England Fresh Egg Institute, Northeastern Poultry Producers Council, International Baby Chick Association, Michigan Allied Poultry Council, Institute of American Poultry Industries, and western producer cooperatives all have definite educational programs which are reaching thousands of consumers.

The Bureau of Home Economics of the U. S. Department of Agriculture has prepared and distributed literature, charts, film strips, and radio script on poultry products. This material has reached consumers through many channels and is a service which the industry needs and deeply appreciates.

The U. S. D. A. Poultry Consumer Education Subcommittee, which is made up of members of various bureaus, has done exceptionally fine work in coordinating consumer activities in the Department and has rendered valuable services in preparing statistical data. This committee has been responsible for much of the publicity which the department has issued on poultry and eggs.

The benefits derived from the Poultry and Egg National Board's first year's program cannot be measured in dollars and cents. We think, however, that it has become part of the entire poultry industry in which everyone shares.

INDIANA egg retailers, 8,407 of them, with 524 wholesalers, have registered with the Indiana State Egg Board. Of the registrants, 1,540 retailers and 122 wholesalers have qualified to sell Indiana grade A eggs. Eight inspectors travel the state, visiting each of the 10,000 stores three times each year. To date, 100 cases have come to the board for prosecution under the law enacted by the 1941 legislature, says Produce Packer for August 30.

Poultry Meat Study

A two-year study of the cost of producing poultry meat in Orange county, Calif., has just been completed by Ross E. Crane, assistant farm advisor.

This study was undertaken in March, 1939, by a number of interested poultry meat producers, co-operating with the Agricultural Extension Service. In the first year, figures on the production of over 60,000 fryers were obtained. In the second year of the study, figures on the production of 58,000 fryers were included.

The study shows that, on an average, in 1940, the poultrymen in the study were able to market as fryers 88.4 per cent of the baby chicks purchased. This indicates a mortality of 11.6 per cent. In the first year of the study, the mortality was 16.1 per cent.

In both years, the amount of feed used to produce a pound of poultry meat averaged 4.2 pounds. This includes feed consumed by birds that have died. The per cent of feed fed as mash was 91.1 per cent and 96.5 per cent, the balance of the feed being grain.

In 1940, the average cost of producing a pound of poultry "fryer" meat was 16.8 cents. This was made up of the following costs: Feed, 8.9 cents; hired labor, .8 cents; family labor, 1.8 cents; fuel and miscellaneous, .6 cents; depreciation and interest, .8 cents, and chick cost, 3.9 cents. From this total cost can be deducted .7 cents per pound as value of manure and value of feed sacks, leaving a net cost of 16.1 cents per pound. During this period, the average cost of feed was $2.07 per hundred.

Four out of the five producers in 1940 sold their output at a contracted price to a large restaurant specializing in chicken dinners. The price these producers received was 20 cents per pound. The average price received by the other producer in 1940 was 17.5 cents per pound.

In both years of the study, the producers averaged a small profit. In 1939, the farm income was 9 cents per bird. In 1940, it was 18 cents per bird. The higher farm income in 1940 was due to lower mortality, lower feed costs, and higher price for birds sold. The average price of birds sold in 1940 was 19.6 cents per pound. In 1939, it was 18.9 cents. The average weight of birds sold in 1940 was 3.2 pounds. In 1939, it was 2.8 pounds.

—California Cultivator, Aug. 9, 1941.

TURKEY, or its equivalent, goes into the army ration two days a year, by Presidential proclamation, according to the New York Times. It is served on Thanksgiving Day and at Christmas; either 20 ounces of drawn turkey or 28 ounces undrawn.

Drier Houses with Built-Up Litter

By **CARL O. DOSSIN**
Penn State College

Reprinted from Everybodys Poultry Magazine

WET litter in the laying pens is usually a problem only during the winter months. Nevertheless, those poultrymen who have had wet litter in the past should be planning during September to avoid it this coming winter. Wet litter is generally caused by cold floors, crowding, and faulty ventilation.

Deep or built-up litter has solved this problem to a great extent for many poultry raisers. The thought behind this program is to build up a deep layer of finely broken-up litter and dried droppings on the floor to serve as insulation. This deep layer of material helps to prevent the cold air from the floor from meeting the warmer air in the pen and causing the moisture in it to condense and settle in the litter.

Start with Small Amount

The plan is to put a small amount of litter on the floor and when it is broken up add more without cleaning. For it to be successful, the poultryman should start to build up the deep layer of litter while the weather is still reasonably warm and the air dry. In most parts of Pennsylvania and the Northeast, this program should be started during September if only straw is used for litter. It may be started a little later by covering the floor with a couple of inches of some fine material such as dry sawdust or shavings and then later adding straw when this material becomes soiled.

The use of deep or built-up litter is not limited to those who use straw. As a matter of fact, shavings, sawdust, peat moss, sugar cane litter, peanut shells, ground corn cobs, oat hulls, and any other litter can be used in the same way.

Damp Sawdust Satisfactory

If the pullets are housed in August or early September and sawdust is used for litter, it does not necessarily have to be thoroughly dry, for it will dry out in a short time at that season. If the pullets happen to be housed in a real hot spell, the damp sawdust has an advantage in that it will help to lower the temperature of the pen.

If straw is used for litter, only a small amount should be used at first. After this straw has been broken into small pieces, then and then only should more straw be added. This is important, for straw absorbs moisture only through its broken edges, so one can see that straw worked up into small pieces will absorb the most moisture. Then, too, the small particles of straw provide more satisfactory insulation. The poultryman should have a layer of no less than 4 inches of broken up material on the floor before cold weather sets in in November.

Keep Litter Stirred

The litter should be kept stirred up for best results. Some folks do this with a fork, but most of them rely on the chickens to do the work. If a small amount of scratch feed is scattered in the litter, the birds will work it up hunting for the grain. Some poultrymen throw all their scratch feed in the litter, but when this practice is followed, very close watch should be kept to make sure the birds clean up all of it. It is advisable to put the evening grain in troughs.

It is not necessary to have more than 6 inches of this material on the floor at any time for satisfactory results. If the litter gets deeper, some of it can be removed from the pens. The litter around the water fountain often gets wet by the water thrown about by the birds when drinking. This wet litter should be removed from time to time, and finely worked up material from other places in the pen should be used to cover the cleaned areas. Then a small amount of clean long straw can be used to cover the litter in the entire pen.

This method of litter management has solved the wet litter problem for many folks when it has been built up as recommended. As a matter of fact, it has worked so well that many poultrymen are cleaning their pens only once a year. The practice most generally followed, however, is to clean the pens in the spring as soon as the weather gets settled and the period of the greatest problem from wet litter is over.

Advantages set forth for this suggested plan for managing the litter in the laying houses are:

1. Saves labor and litter expense.
2. Houses kept drier.
3. Warmer pens.
4. Fewer soiled eggs.

Don't Crowd Birds

This program generally has not worked if the houses have been badly crowded. Plan to allow 3 square feet of floor space per bird for Leghorns and 4 square feet for the heavy breeds.

Other important points to remember are that the plan should be started early in the fall and litter added only when that already in the house has become finely broken. There should be about 4 inches of the material in the pens before cold weather arrives. At least some scratch feed should be scattered in the litter so the birds will stir it up while looking for the grain. The wet

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, August-September, 1941)

material around the fountains should be removed from the pens and the areas thus cleaned covered with finely broken up litter taken from other parts of the pen.

With late hatched pullets, it is important that several inches of fine material be put on the floor before adding straw. It is a little more difficult with late birds to get this method to work satisfactorily. When a type of feeder that sets right on the floor is used, it should be moved rather frequently, otherwise the litter around it cakes and packs.

Freezing Eggs for Home Use

It is estimated that there are in the United States 3,000 freezer-locker plants, serving over half a million families in town and country. These consist of cold-storage rooms in which small compartments are rented on a yearly basis. They are held at near-zero temperature, and are used to store meats, fruits, butter, and poultry products, the idea being to put such seasonal products into storage when they are plentiful and cheap, and consume them later in the year. Eggs have been included in the list of commodities satisfactorily stored. The eggs are first broken out of the shell and placed in small tin containers. This process is carried out in the spring months, when the price is lowest. In the fall and winter months, the containers are removed, and the eggs are thawed out and used in the home as scrambled eggs or in cooking. Sometimes, the egg yolks are separated from the whites, mixed thoroughly, and stored in separate containers, the housewife thereby having the ingredients for an angel-food cake or salad dressing all ready for mixing. This process of storing is only an adaptation of commercial practices, but it may be an important factor in promoting larger and more economical consumption.

—H. L. Shrader in U. S. D. A. Circular 583, "Eggs and Egg Products."

❦ THE PULLORUM disease test program in Maine is financed by poultrymen themselves. Their 21-year campaign to eradicate pullorum disease has been so successful that last year only 35 birds in 2 flocks were found to have pullorum disease, although a total of about 354,000 birds were tested.

In the earlier years of the testing program, from 2 to 20 diseased birds were found in every hundred tested.

—University of Maine news release, August 25, 1941.

The Gizzard Erosion Problem

By H. R. BAKER and L. M. GREENE
Delaware State Board of Agriculture

Condensed from the Peninsula Broiler Journal

THE problem of gizzard erosion was first recognized about 1930, but it has been only since 1935 or 1936 that it has received much attention. Early in its history, it was determined that erosions occurred in the secreted gizzard lining and were due to a shortage of a nutritional factor. Different investigators found this principle in various substances.

Many investigators believed that the occurrence of these crater-like lesions in the gizzard lining was the result of "over refined" experimental rations, and did not constitute a production problem. In some sections this may be true. At least it is not reported as being of major importance in many geographical sections of the country.

Gizzard Erosion Frequently Found

Delaware is a highly intensified broiler area, producing over 50 million broilers annually. Since 1939, it has been the privilege of the writer to be located in the heart of this large broiler area, engaged in Disease Service work to poultrymen. Naturally, many poultry diseases are encountered in such an area, and large numbers of causes of various diseases are observed regularly.

During the earlier months of the work here, gizzard erosion was the most frequently encountered disease of broilers.

No definite correlation has been made regarding the expectancy of gizzard erosion. Some cases occurred alone and some in conjunction with other diseases. Contrary to the findings of most investigators, the problem in the field causes heavy mortality. Growth is seriously affected and in a severe case a high percentage of the recovered birds are so severely stunted that little, if any, growth is made subsequent to an outbreak.

Symptoms

Symptoms produced in a flock are fairly definite and follow along uniformly general lines. However, a post mortem examination is necessary for definite diagnosis.

Affected birds usually first begin to grow abnormally long wing feathers, which later protrude in rear of the chick's body and drop so as to hang below the normal wing position. At about this stage, the chicks lose their appetite for normal feed and appear to be hungry. They

The Peninsula Broiler Journal, Shelbyville, Del., July 7, 1941 will run and chirp with the feeders full of feed. Great quantities of litter will be consumed, and finally complete loss of appetite results.

Extremely heavy mortality may result in severe cases, especially if poor management is used at this particular stage. Frequently, poultrymen were encountered who had diagnosed the flock condition as resulting from coccidiosis. Many such poultrymen had administered some type of flushing agent with very disastrous results. The mortality has exceeded 500 chicks per day from a 6,000 chick flock.

Sex Not a Factor

The age factor seems to play some part in the occurrence of this condition, as the majority of cases are observed in birds under eight weeks of age. Quite a number of day-old chicks have been examined and gizzard lesions observed. The condition has been found in pullets of production age. Although no tabulations have been made, from clinical observation it seems that sex of the bird does not hinder or aid the occurrence of the condition.

Post mortem lesions need not be listed here, other than to record some variations observed. In some cases the earlier lesions are in the form of craters or eroded spots in the secreted linings. Usually these appear at the junction of mucous membranes of the proventriculus and gizzard lining. They may be round, oblong, or irregular in outline. They penetrate the secreted membrane, and the tissue beneath is gray and of a parboiled appearance.

"Blood Blister" Lesions

Another variation occurs when the first visible lesion is that of free blood between the secreted membrane and the tissue of the gizzard. These "blood blisters" appear to wear through, and thus form a crater-like lesion.

Sometimes the secreted membrane seems hard and becomes brittle. The lining will ridge and the ridges will fray off and come up in shreds.

At times the secreted membrane turns white, thickens and becomes very soft and spongy. When this is the case, all elasticity is lost.

Probably most pathologists are familiar with the fact that the gizzard lining, even in a normal bird, loosens shortly after death. Correct diagnosis of gizzard erosion may be made from chicks that have been dead for some time. However, one should be cautious in making a diagnosis from such chicks. Many cases have erroneously been called gizzard erosion due to this rapid post mortem softening. In cases where there is any doubt as to the true condition of the gizzard lining, freshly killed specimens should be used for examination.

Treatment

Everything imaginable has been tried in the way of home treatment by the broilermen. After a careful study of the published material on gizzard erosion and believing most investigators had some usable facts, even though in instances they seemed on the surface to be at a variance with some other work, a summary was made. The following formula, and the manner in which it is to be used, are the results of this summary.

10% alfalfa leaf meal
10% bran
10% ground oats
5% grit
(All mixed in whatever brand of commercial mash is being used).

This feed, with its supplements, which are supposed to supply the gizzard factor, was fed for a week. Along with the feed, a 1: 2,000 solution of copper sulphate was used for drinking water. The copper sulphate is a chemical astringent and clinically seems to aid in healing the necrotic areas and/or causing the deposit of a healthy membrane. Birds opened after this treatment had been used for several days show the old gizzard lining almost entirely sloughed off and a new thin lining beneath the old necrotic one.

This combination works very well when the case is not complicated by some other disease. When a straight case of gizzard erosion is encountered and both the copper sulphate and feed mixture are supplied, recovery is noticeable within two to three days. Birds start to eat, color up, and are more active. But when some disease such as cecal coccidiosis, for instance, is present, it is very difficult to get a good response from the flock, recovery is much slower, and heavier mortality may result.

Results of Gizzard Erosion

Clinically, from observations made in the concentrated broiler area, the following conclusions seem justified. Later experimental work may show the connection gizzard erosion had to these results or show what does cause them. However, now it seems that:

1. Gizzard erosion does occur where no other recognizable disease is present.
2. Gizzard erosion stunts birds.
3. Gizzard erosion causes heavy mortality at times, unless the "erosion factor" is supplied.
4. Gizzard erosion occurs in day-old chicks.
5. Gizzard erosion occurs in sexually mature birds.
6. Recovery is evidenced quite soon after treatment is started in uncomplictaed cases.
7. Laboratory work is needed to determine means of fortifying the regular mash so as to avoid the occurrence of gizzard lesions.

Symptoms Will Identify Nutritional Deficiency in Poultry

By L. P. DOYLE
Purdue University

Reprinted from Feedstuffs

WHEN poultry subsists on rations that are deficient in essential nutritional factors, diseased conditions develop. Some of these diseased conditions are manifested by characteristic symptoms which make it possible to determine quite accurately what essential nutritional substance is lacking in the feed. In such instances, the disease usually can be prevented or cured by supplying the needed substance. In the case of perosis, slipped tendon, there is no practical way of reversing the disease process and effecting a cure.

Symptoms Confusing

Nutritional deficiencies do not always cause characteristic symptoms. Inadequate nutrition may result in such general symptoms as retarded growth, loss of weight, defective feathering, decreased egg production, and lowered fertility. While malnutrition is often characterized by retarded growth or loss of weight, rapid growth may actually increase the tendency toward certain nutritional diseases such as rickets, and perhaps slipped tendon.

Practically all of the nutritional deficiency diseases that are known to cause characteristic symptoms and lesions result from an inadequate supply of vitamins. Perosis is a possible exception, although there is evidence suggesting that a vitamin may play a part in preventing this disease also. The problem of accurately recognizing nutritional diseases in poultry is sometimes complicated by the occurrence of infectious diseases which cause symptoms closely resembling those of specific deficiencies. For example, the eye symptoms in infectious roup may closely resemble the effects of vitamin A deficiency. The infectious form of fowl paralysis sometimes causes leg symptoms which are indistinguishable from nutritional paralysis.

According to our present knowledge, there are four specific deficiencies which appear to be of considerable importance in poultry. These are vitamins A, D, and G, and manganese deficiency. Other deficiencies sometimes occur, but it is ordinarily not necessary to add other special vitamin carriers to poultry rations in order to prevent serious disease.

The Miller Publishing Co., Minneapolis, Minn.
(Feedstuffs, June 7, 1941)

Nutritional Roup

An adequate supply of vitamin A is necessary for normal growth and for maintaining a healthy condition of the epithelial tissue which lines most of the important organs in the bird's body. As would be expected, vitamin A deficiency is characterized by retarded growth, increased susceptibility to certain kinds of infections, and increased mortality. The characteristic lesions or disease

being fed sufficient amounts of vitamin D. It is important to note that rickets may occur, in fact is most likely to occur, in rapidly growing birds. Of course, retarded growth occurs later, after the disease develops.

The symptoms of rickets in broilers are stilted or "sore" gait, a tendency to remain in a sitting position most of the time, and an increased pliableness or softness of the beak and jaw bones. In pullets the symptoms are a tendency to lay thin-shelled or shelless eggs; and occasionally, so-called egg cramp occurs as a striking symptom. This latter sympton is one in which the affected bird suddenly shows transient paralytic symptoms from which it ap-

causes a paralysis of the lower part of the legs and the toes. This disease is limited largely to birds between the ages of 3 or 4 weeks to 10 or 12 weeks. The fact that it occurs at a

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INTENTIONAL 2ND EXPOSURE

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Rickets

Vitamin D deficiency results in rickets. This is actually or potentially by far the most important deficiency disease so far as the broiler producer is concerned. The broiler grower must prevent rickets in order to avoid disaster. Rickets is also important in pullets which are closely housed for long periods without being fed sufficient amounts of vitamin D. It is important to note that rickets may occur, in fact is most likely to occur, in rapidly growing birds. Of course, retarded growth occurs later, after the disease develops.

The symptoms of rickets in broilers are stilted or "sore" gait, a tendency to remain in a sitting position most of the time, and an increased pliableness or softness of the beak and jaw bones. In pullets the symptoms are a tendency to lay thin-shelled or shelless eggs; and occasionally, so-called egg cramp occurs as a striking symptom. This latter sympton is one in which the affected bird suddenly shows transient paralytic symptoms from which it apparently recovers quickly. Rickets may be the cause of the indefinite "going to pieces" which sometimes occurs during the winter months in flocks of pullets.

The characteristic lesions of rickets are found in the skeleton and in the parathyroid glands. The bones are abnormally soft; and the various parts of the skeleton may be greatly bent or distorted. The ribs show knobbing and may be greatly bent or even broken. The breast bone is often more or less bent. The ends of the various long bones may be somewhat enlarged. The parathyroid glands are enlarged.

Nutritional Paralysis

Vitamin G (riboflavin) deficiency causes a paralysis of the lower part of the legs and the toes. This disease is limited largely to birds between the ages of 3 or 4 weeks to 10 or 12 weeks. The fact that it occurs at a

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comparatively early age helps to distinguish it from the infectious form of paralysis which has become so prevalent in chickens during the past several years. Nutritional paralysis, resulting from vitamin G deficiency, is characterized by a turning in and under of the toes in such a way that the bird walks on what should be the top of its toes.

Birds which have been affected by this disease for only a short time make a rapid recovery when adequate amounts of vitamin G are fed. The characteristic lesion of nutritional paralysis is enlargment and softening of the main nerve trunks in the leg.

Manganese Deficiency

Perosis, or slipped tendon, is generally considered to result, at least partly, from a deficiency of manganese. Hogan, of the Missouri Experiment Station, has obtained evidence indicating that this disease may result from a deficiency of a vitamin tentatively classified as belonging to the B complex.

Perosis, as the name indicates, is characterized by distortion or deformity of the legs. It differs from rickets in that the skeleton, other than the bones and joints of the legs, appears normal. The hock is more frequently affected than any other joint. However, the joint above the hock may be affected in such a way as to cause a decidedly "spraddle-leg" effect; and requires considerable care to distinguish it from paralysis. The symptoms of perosis vary from a slight flattening or bending of the hock to a marked distortion of the affected joints, with complete disabling of one or both legs.

Other Deficiency Diseases

There are several other rather specific deficiency manifestations which may occur in poultry. Vitamin K deficiency causes the blood to fail to clot or increases the blood clotting time. Birds suffering from vitamin K deficiency may bleed to death following slight injury such as occurs, for example, in wing banding. It is not certain yet just how much of the abnormal tendency to bleed occurring in chickens is due to viatmin K deficiency. A deficiency of the anti-dermatosis factor, the so-called filtrate factor, causes a pellagra-like condition in chickens. This disease is characterized by a crusty or scabby condition at the angles of the mouth and around the base of the beak; and by a sticky exudate from the eyes which may cause the eye lids to stick together.

Available evidence indicates that the gizzard erosions commonly seen in chickens should be attributed to nutritional deficiency, instead of to mycosis. The antigizzard erosion factor seems to be a multiple one. Thus far it does not seem to be of much practical importance.

Iodine deficiency causes enlargement of the thyroid gland. In our experience, this deficiency has been of little or no practical importance in poultry. Considerable caution should be used if iodine is added to feed. Iodine is a poison and may do considerable harm when used too freely.

In farm flocks of poultry there sometimes occur well marked manifestations of deficiencies not covered in the foregoing discussion. Instances have been noted where growing chickens, subsisting principally on corn, developed osteomalacia, or soft, brittle bones. Young rapidly growing geese and ducks living mainly or entirely on grain frequently become helpless due to inability to stand on their feet. These conditions can be corrected by feeding an adequate growing mash or by supplementing the grain with adequate protein and mineral.

The foregoing discussion has dealt principally with disease manifestations which are more or less characteristic of specific nutritional deficiencies in poultry. No mention has been made of several vitamin deficiencies which are known to be of paramount importance in other species of animals. Certain striking disease manifestations, such as "crazy chick" disease, and chick edema or dropsy have not been discussed because there is still some question as to their exact nature.

In conclusion, perhaps we should remind ourselves that the major economic loss due to malnutrition in poultry probably occurs in the form of retarded growth, lowered fertility or hatchability, and decreased livability, rather than in the form of characteristic disease symptoms.

Parrot Fever in Chickens

Dr. Karl F. Meyer reported the discovery of psittacosis in both pigeons and chickens recently, according to a report in Veterinary Medicine for August, 1941. The disease is said to have been found in barnyards and pigeon roosts in California, Illinois, and New Jersey.

¶ LOUIS PASTEUR, famed for developing the process now termed "pasteurization" and for his work with rabies vaccine, should be hailed by poultrymen, for it was he who first proved that fowl cholera is an infection, discovered its mode of transmission, and developed a vaccine for its prevention, according to Veterinary Medicine, July, 1941.

Dual-Purpose Breeds on Diversified Farms

By G. D. McCLASKEY
Topeka, Kansas

Reprinted from U. S. Egg and Poultry Magazine

ALTHOUGH there is criticism from some sources, of the stand taken by poultry packers in encouraging farmers to produce and maintain flocks of dual-purpose chickens, there is substantiating evidence to justify the packers in the stand they take. Poultry packers are interested in both eggs and poultry meat. They need both for the operation of their plants.

There may never be an end to the controversy over what enables producers to make money from their poultry. The controversy has been going on a long time and may continue for a longer time.

Money from Eggs and Meat

There are those who tell us that the money in the chicken business comes from the sale of eggs, which can only mean that the sale of chickens for meat would be merely a sideline on the farmer's business of producing eggs. On the other hand, in those specialized broiler-producing districts developed in recent years, the entire income is from the sale of chickens for meat, and the folks in those districts are doing quite well, too.

White Leghorns are "it" the country over on large commercial egg farms whose operators are interested only in eggs and plenty of them. On these commercial egg farms, poultry meat is definitely a side-line, and usually a small one at that.

White Leghorns Essential

I have said before, and I say it again, that we can no more get rid of White Leghorns in the chicken business than we could get rid of Holsteins in the cattle business. Leghorns are needed not only because they are naturally good producers, but because of the white-shelled eggs they produce.

There's a place for White Leghorns on commercial egg farms. And if the man, or his wife, living on a farm where diversified agriculture is practiced wants to keep chickens mainly for the eggs they produce, White Leghorns will serve the purpose. However, a producer of this kind of chickens should not complain about the price he receives when he sells his hens after they are no longer profitable producers.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, June, 1941)

Many Leghorn hens, after a long period of heavy production, are very poor meat birds. A portion of them are in the same class as canner cows.

A canner cow from a dairy herd is not much of a meat animal. A canner hen is a decidedly poor meat specimen, and now that the Federal Food and Drug Administration does not permit the sale of poultry unclassified as to grade, canners, regardless of the breed of chickens, are worth next to nothing or nothing at all. But that's another story. We're thinking now about the kind of chickens that will give the best results and be most profitable on that large number of farms the country over where diversified agriculture is practiced.

Results of Laying Tests

It is on these diversified farms where any one of a half dozen varieties of dual-purpose chickens fits right into the picture. There are the official reports of the laying tests and of state demonstration flocks to back up any argument in favor of dual-purpose breeds on diversified farms.

I have before me the reports of all the official current laying tests of this country for the 151-day period to March 1, 1941. These tests are conducted pretty generally over the country — from California to Florida, from Texas to Maine.

These reports tell a most interesting story of how dual-purpose (familiarly known as heavy-breed) hens walk into the nests and offer strong competition to the White Leghorns by the manner in which they perform in filling those nests with beautiful brown-shelled eggs, for which there is just as strong consumer demand as for white-shelled eggs.

A variety of breeds is represented in the pens of birds entered in these laying tests. The hens are of all shapes, sizes, and colors known in poultrydom.

Standardizing Flocks

In these 18 laying tests, only four breeds — White Leghorn, Barred Plymouth Rock, New Hampshire, and Rhode Island Red—are represented in the 20 highest pens for the period to March 1. This should lend encouragement to farmers in keeping a limited number of breeds in the interest of standardization. In this group, a pen of White Leghorns is in first position, with 1,767 eggs. A pen of Barred Plymouth Rocks is in second place, with 1,760 eggs. If this is cause for any excitement, it should be over the neck-and-neck race between a pen of egg-type birds and a pen of dual-purpose birds.

High Pen Records

In checking up on the high pen in each of the 18 standard tests, it is found that here again only four breeds are represented — the same breeds represented among the 20 highest pens of all breeds.

While a few positions are changed, compared with the high hen of each breed, the record of the high pen in each breed shows the same breeds in the top five places. The standing of all pens is about the same as that of individual hens in each breed. High pen in each breed is as follows.

> White Leghorns, 1,767 eggs; Barred Plymouth Rocks, 1,760; Single Comb Rhode Island Reds, 1,703: New Hampshires, 1,594; White Plymouth Rocks 1,462; Mottled Anconas, 1,345; White Wyandottes, 1,340; Black Australorps, 1,221; Buff Minorcas, 1,069; Rose Comb Rhode Island Reds, 1,067; Black Minorcas, 1,007; Brown Leghorns, 923; Buff Orpingtons, 914; Light Brahmas, 900; Lamonas, 886; White Giants, 842; Buff Leghorns, 768; White Minorcas, 649.

A conclusion could be that any breed, handled under identical conditions, which produces only about one-third to one-half as many eggs as are produced by other breeds had better make way for the top-notch producers, if eggs are the money-making side of the farmer's poultry enterprise.

State Farm Flock Records

Now suppose we take a look at a state demonstration farm flock record as a means of gathering further facts in support of dual-purpose chickens on diversified farms. The latest such record I have is for the month of February, 1941. It covers flock production and the average number of eggs per hen for the month.

In this state report, the records of the high five flocks of each of the leading breeds for that state are given, there being seven breeds listed. Miscellaneous breeds are grouped under the heading of all other breeds, which prevents giving individual production figures for the breeds included in the latter group. The average number of eggs per hen of the five high flocks of each of the five most popular breeds in the state for February are:

> White Leghorns, from 18.77 to 20.77 average number of eggs per hen in each flock; White Plymouth Rocks, 17.10 to 19.50; Single Comb Rhode Island Reds, 15.60 to 19.00; Buff Orpingtons, 14.44 to 17.11; Rhode Island Whites, 10.70 to 17.05.

It will be noted that New Hampshires and Barred Plymouth Rocks are not included, whereas these two breeds are prominently listed in the reports of state and national laying tests. New Hampshires are coming prominently into the picture in the state from which this demonstration farm flock report was received, but thus far those in charge of the demonstration flocks include New Hampshires in the miscellaneous group. Barred Plymouth Rocks are no longer regarded as a popular farm breed in this state. On the other hand, Rhode Island Whites are well thought of. There are far more flocks of White Leghorns, White Plymouth Rocks and Rhode Island Reds than of all other breeds combined.

Pick Good Strains

White Leghorns as a breed head the list of high egg producers, no matter where you find them. But there are good White Leghorns and many not so good. Those not-so-good trail behind popular dual-purpose breeds in egg production. The better White Leghorns are available, so there is no need for any Leghorn flock owner to continue keeping 3-pound and 3½-pound hens. These small birds should be replaced with hens weighing 4 pounds or more.

Poultry packers who operate hatcheries, while not enthusiastic over Leghorns as meat birds, recognize the fact that this breed has a definite place in the chicken business, mainly as a producer of white-shelled eggs in volume, and through their hatcheries are putting forth every effort to place the large birds on farms where the owners won't have any chickens but White Leghorns.

Dual-Purpose Breeds

Since it has been shown in laying tests all over the country, in demonstration farm flock work, and in individual poultry enterprises, that those dual-purpose breeds which are making the highest egg records compete closely with White Leghorns in number of eggs produced, the farmer who is engaged in diversified agriculture should readily see where one of these four or five leading dual-purpose breeds is most profitable for him to keep.

The advantage of a high egg producing dual-purpose breed, compared with a strictly egg-type breed, is in the greatly increased poundage when the birds are sold. Adding the extra weight of the hen to the eggs they produce means more income than when eggs alone are regarded as the source of income from the flock of chickens. Then, too, there's additional money from the sale of good-sized frying chickens, roasters, and capons.

Getting Uniform Products

When breeds on diversified farms are restricted to four or five of similar body conformation, that results in a uniform product in volume when poultry is moving to market. There always is an advantage in having a large volume of a uniform quality product as compared with all sizes and shapes, even though the volume of the latter may be as great. Having a uniform product in large volume is the secret of rapidly-growing specialized broiler districts in several parts of the country. Owners of farm flocks must take this into consideration if they are to make the success with poultry to which they are entitled.

Too much emphasis has been placed on the egg side of the chicken business and not enough on the meat side. Eggs and poultry meat should be a 50-50 proposition on all farms where diversified agriculture is practiced. Here's where one of four or five of the dual-purpose breeds which are making the best showings as egg producers belong.

Catching Pullets from Trees

The problem of collecting pullets out of trees in the fall of the year has always been a serious one with many poultry raisers. Here is a method which I have used with good success for many years.

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By **ROY W. LENNARTSON**
Farm Credit Administration

Reprinted from News for Farmer Cooperatives

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Auctions Test Dressing

A few of the cooperatives operating live poultry auctions, for example, recently have made provision to dress some poultry in an effort to learn whether or not this method of handling can advantageously supplement the auction method of sale. There is, in general, increasing attention being given by the co-ops to the needs and possibilities of marketing dressed poultry.

The Rockingham area, it should be noted, has the first requisite for the successful operation of any dressing plant; namely, concentrated production. It is one of the principal commercial broiler and turkey raising counties of the country, with an estimated 5,000,000 broilers and 450,000 turkeys raised annually. There is therefore available a large and constant volume of uniform and relatively high quality poultry.

Full evidence of the importance of this point is that of the 20 or more large privately operated dressing plants now operating in the East, about two-thirds are located in or adjacent to commercial broiler-producing areas. No factor is as important in making dressing plant operation possible in the East as the concentration of commercial broiler production in localized areas.

Commercial Areas are "Different"

In sharp contrast to the broiler-raising areas are the commercial egg-producing sections. In the latter, poultry meat production is a by-product of the egg-producing flock. Sales are highly seasonal, and the poultry lacks the uniformity in size and quality of that raised in the broiler areas. Because of these conditions, relatively few dressing plants have been established in areas primarily devoted to egg production. Plants in such areas usually can

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operate only on a seasonal basis, which is inimical to low-cost operation.

Fortunately, the live-poultry auctions, of which there are 18 operating in the Northeast, have proven particularly adapted to the selling of poultry from egg-producing flocks. It is significant that the dressing plants procure little of their volume from the areas served by the auctions and seldom do plant operators purchase poultry at the auctions.

Low Per-Unit Operating Costs

But the Rockingham co-op, in a well populated broiler area, obtains volume to operate its plant at capacity within a 20-mile radius. This helps to assure the second essential of a successful dressing plant enterprise—low per-unit operating costs.

This second essential of low per-unit operating costs is particularly important in the East, where margins between live and dressed poultry prices are kept relatively narrow because of the demand for live poultry on the part of the Jewish and Italian populations in New York City.

Dress 10,000,000 Pounds a Year

Because per-unit operating costs tend to bear an inverse relationship to the volume of poultry dressed, it is obviously desirable that the dressing plant have a large capacity. This fact was recognized in planning the Rockingham plant. Its dressing capacity is large—in fact one of the largest in the country. The plant can handle, as a normal operating load, 1,600 birds per hour or 64,000 birds per 40-hour week. This gives a total volume of around 10,000,000 pounds of poultry per year.

The plant is fitted with the latest in dressing equipment. Numerous labor-saving devices have been installed and there are a number of handling methods which are unique. For example, an endless conveyor chain carries the birds from the feeding room on the second floor to the dressing room on the first floor. Another feature is the use of immense wire baskets to transfer the dressed birds in bulk from the cooling vats to the grading and packing department.

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Furthermore, the greater the uniformity of live birds purchased, the greater are the opportunities of the plant operator to develop a uniform pack of dressed birds and, consequently, more satisfactory market outlets. The broilers produced in the areas surrounding the Rockingham plant are among the finest in the country. Virginia broilers are generally sold at a premium over broilers from other areas on the New York market. In this respect the Rockingham plant is therefore advantageously situated.

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Jewish Chicken Dinners are Kosher

By C. E. BURKHEAD
Agricultural Marketing Service

Reprinted from Marketing Activities

THE preparation of chickens for cooking is a relatively simple matter in the gentile household. But to be acceptable to the Jewish family, the birds must be killed and cleaned in strict accordance with the ancient laws of Moses. If these age-old rules are followed to the letter, the chickens are "kosher," which means clean. Otherwise, they are "trefe"—unclean—and are unsuited for use as food by members of the Jewish faith.

The Jewish housewife, who does most of the poultry buying for her family, may purchase her chicken from the butcher – the "kosher bosher" – an accredited vendor of kosher meat and poultry. But if she wants to be absolutely sure that her chicken will be kosher, she buys it alive. It must be free from all blemishes, for any slight injury makes the chicken "trefe."

Slaughtering Ritual

Her live chicken is slaughtered by the "shochet," who is certified by a rabbi as qualified to perform the ritual. The shochet is a representative of the synagogue in the performance of the ritual. The work of the shochet is periodically checked by the rabbi issuing the certificate to see that slaughtering is being done properly. The shochet's usual fee for slaughtering is 10 cents.

The chicken must be killed in a certain manner and according to a certain ritual. A number of feathers must be plucked from the neck, the throat slit, and the chicken dropped into a barrel until bleeding has ceased. To be kosher, every drop of blood must drain, because, according to the rigid Jewish dietary laws, "Blood you shall not eat."

Dry Picking Only

The chicken must be dry-picked after it is killed. At most markets a few elderly Jewish women are willing to pick the bird for a small amount if the housewife does not relish the task. By letting these women pick the chicken, the housewife helps the needy and thus does something deserving of the Almighty.

The housewife takes her chicken home and prepares it for cooking, but if she finds a blemish after she opens the bird—any kind of blemish—she must consult the rabbi. If the chicken passes his approval, it may be eaten. The housewife must singe her chicken thoroughly to remove every pin feather. It must be soaked in cold water for half an hour and then sprinkled with coarse salt—kosher salt—and placed on a special board. After taking salt one hour, the chickens may be washed and cooked, but it must be used within 3 days.

U. S. Department of Agriculture, Agricultural Marketing Service
(Marketing Activities, August, 1941)

Chicken for Sabbath

Friday is a busy day for the Jewish housewife, the butcher, the live poultry dealer, and the shochet. Most Jews who can afford it, eat chicken on the Sabbath – sundown on Friday to sundown on Saturday —and during the numerous holidays. Many chickens are bought for the Passover Holidays—eight days which are celebrated to commemorate the deliverance of the Jews from Pharaoh. Young, fat, spring chickens are most popular for this occasion and the Jewish housewife, whenever possible, will buy a fowl in which she hopes to find some eggs. If per-chance she finds an egg already covered by a shell, she must at once consult the shochet to determine its kosherness.

For Yom Kippur – the Days of Atonement—the Jewish family purchases at least one fowl and one rooster. If finances permit, one fowl is purchased for each female member of the family and one rooster for each male member. These chickens are used alive in a symbolical ceremony performed on that day. After the fowls and roosters are cooked they lose their identity, and the family gathers 'round for the feast.

Despur Your Cockerels

For the past three years, all of the cockerels on the University Poultry Farm have been despurred. The spurs are shaved off with a sharp knife when ⅛ to ¼ inch long. The wound is touched with a stick of potassium hydroxide, which prevents further growth.

A piece of heavy wax paper should be folded and wrapped around one end of the stick and held in place with a rubber band. Potassium hydroxide is more caustic than lye (sodium hydroxide) and will burn fingers severely.

The advantages of despurring are: The birds can't do each other quite so much damage in fighting; it eliminates some injury to the backs of breeding hens; and it makes the adult cocks easier to handle.

—Florida Calendar Flock Records, May-June, 1941.

Ducks on Long Island

By D. H. HORTON
Farmingdale, Long Island, N. Y.

Reprinted from New England Homestead

LONG ISLAND Duck and Chicken Dinners" and "Tourists Accommodated" seem to be the signs of the times in the northeastern part of the country, and the idea seems to be spreading to the middle west and to the south. In fact, Long Island ducklings are grown in all parts of the country. Not that less ducks are being raised on Long Island, because, actually, more are being raised, but more ducks are also being raised on farms from Maine to the Pacific coast, particularly in the middle west.

Famous for Ducks

There was a time not so long ago, when Long Island was the center of the duck industry, and the island became famous for its ducklings, just as Maine is famous for its potatoes, Georgia for its peaches, Kentucky for its blue grass, the middle west for its corn and wheat, and the mountain states for alfalfa.

On the specialized plants on Long Island, from 50,000 to 180,000 ducklings are raised each year. On the farms, we find a few hundred are hatched and reared annually. In the latter case, the birds are sold to hotels and summer boarding houses.

"How long does it take to grow a duck?" is the most common question asked about ducks. The answer is from 10 to 12 weeks, at which time they should weigh from 5 to 6 pounds each. The White Pekin, the variety used exclusively for meat, is one of the easiest of fowls to raise, if given proper care. This generality is made by the writer from personal experience with ducks on a large scale.

Many of the recommendations made for feeding ducks, such as bread crumbs, hard boiled eggs, and rolled oats, are absolutely ridiculous. The duckling needs no pampering as does the pheasant or the turkey, it simply wants a chance to get a square meal and to have plenty of water, half of which is used for drinking and the remainder for playing.

Uniform Heat Essential

The first essential for duck management is uniform heat for the first few weeks. A baby duckling cannot stand chilling. A duckling that has been chilled at night will be dead the next morning.

This requirement does not necessitate an elaborate house for brooding. The type of brooder stove that is used for chickens will be entirely satisfactory for ducks, and the type of house that is ideal for chickens is the best kind of a house for ducks. However, the latter will do slightly better on a sand floor than on concrete, as the excess moisture will penetrate through the sand. Of course, the brooder house should be rat proof, and this is sometimes impossible without a concrete foundation.

Feeding Equipment Simple

In addition to the brooder stove the only equipment necessary is a feeding board a foot or a foot and a half wide, with an inch strip around the edge to keep the feed from being pushed off. Watering equipment consists of a pan deep enough for the ducklings to get all of their bill in the water.

Ducklings make the best gains if fed four times a day. A good schedule is 6:00 a.m., 10:00 a.m., 2:00 p.m., and 6:00 p.m. With the exception of the last feed on the daily program, one should be careful to mix and feed only as much feed as will be consumed in 15 or 20 minutes. Again, a fine point of management is "to go over the birds twice" or, as they say in the army, "give them seconds." One never knows just how much a hungry duck is going to eat, and, as the job is to get as much weight as possible on the bird in a short time, it is well to cater to their large appetites. As soon as the feeding has been completed, it is well to fill the drinking dishes. This, too, may have to be repeated. It is also a good practice to stir up the feed once or twice during a meal as it gets packed down on the boards.

Moist Feed Only

To those not familiar with duck feeding, it might be well to point out that all duck mixtures are fed moist, but not too sloppy or wet, as the duck will refuse to eat his meal if it is not of the proper consistency. This means just wet enough to stick together and sticky enough to make a few small balls. This is accomplished by the use of low grade flour, which usually comprises about 10 to 12 per cent of the mash mixture. As the duck increases in size, additional feeding space should be provided, as well as more drinking dishes. After the first two or three weeks, depending on the season, heat may be decreased rapidly, and the birds moved to a cool brooder house or pen.

Ducks Always Driven

In moving ducks, it is never necessary to carry them; they can be driven in flocks from place to place on the farm, provided one is not in too much of a hurry. On the large plants, ducks are carried only from the incubator cellar. From that time on they are driven until they

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reach the final loading pen.

Fences 2 feet high are sufficient to fence ducks of any age. When they are small, 18-inch wire is plenty high enough.

Rate of Gain

A careful study was made at the State Institute of Agriculture at Farmingdale to determine the weekly gain made by ducklings. This was made by weighing every duck each week. The information thus obtained is contained in the following table.

TABLE 1—Average Weight of Ducklings.

Age	Wt. (lbs.)	Age	Wt. (lbs.)
Day-old	.126	7 wks.	3.690
1 wk.	.153	8 wks.	4.410
2 wks.	.352	9 wks.	4.850
3 wks.	.834	10 wks.	5.480
4 wks.	1.460	11 wks.	6.040
5 wks.	2.040	12 wks.	6.340
6 wks.	3.130		

When ducklings reach 10 weeks of age they should be handled and the marketable ones sold or dressed. At this age, the most rapidly maturing ones will have reached maximum weight. If kept much after that time, they will go into a molt and lose weight for a time until the new feathers grow back again. One cannot expect to keep a duck long after it reaches 6 pounds and make money on it.

Feeding Methods

The method of feeding during the growing period varies, although it is a fairly common practice to use four mixtures. First a so-called starter, then a growing feed, a senior grower and a water front feed, and, finally, a fattening feed, which is designed to add a finish to the bird prior to marketing.

In tests at the Institute, ducks have been raised on a feeding plan that calls for only two mixtures, a starter, and a growing mash which contained 50 per cent corn meal. Other tests have indicated that just as good success could be had when one formula was used from the time the youngsters get their first feed until they were ready for market. In fact, ducks have been raised with good results on the same mash that was fed chicks, when enough flour was added to make it sticky.

Breeders Need to Swim

"Do ducks need water in which to swim?" ranks second in questions asked by people interested in duck raising. The answer is that ducks can be raised without water in which to swim, but it seems advisable to have some kind of a swimming hole for the breeders, as they mate better on the water. Where water is available for swimming, ducklings should not be allowed on the water before the white feathers are partly grown on their breasts. Until these feathers are partly grown, they have no protection against the chilly water, and, as previously stated, chilling is fatal

The third question in regard to ducks is, "What diseases do ducks have?" The writer asked one of the largest duck raisers on the Island this question and his reply was, "Ducks do not have diseases."

In a general way this is true, but it needs some qualifying. There have been serious outbreaks of diseases on duck farms from time to time. In some cases, large numbers of birds have been lost. In most cases, duck troubles are the result of mismanagement and improper feeding. Rickets, caused by a vitamin D deficiency, has responded to the addition of 1 per cent cod liver oil in the mash mixture. It often happens that ducklings must be kept confined for long periods because of weather conditions, and they are unable to get out in the sunlight and bask in the beneficial rays of the sun. Cod liver oil is the best substitute for sunshine.

Feed Balanced Rations

Sometimes along with this sunlight deficiency there is a lack of minerals in the feed mixture. To remedy this, the safest measures to follow are to feed a well balanced ration. When the ducks are confined to the houses, add cod liver oil at the rate of one pint to every 100 pounds of dry feed. This is a safe rule to follow for early brooding, whether the birds are permitted out of doors or not. The days are short and the sun is low, and the amount of beneficial rays received from the sun is small. When losses occur for which there seems to be no logical explanation, it is advisable to move the birds to different quarters and make a thorough clean up, disinfect the houses and equipment, and, if possible, harrow the yard every few days for two weeks.

Ducks Don't Harbor Parasites

Ducks are not known to harbor parasites during the growing period. Roundworms, tapeworms, cecal worms, and coccidia, internal parasites commonly found in chicks, are unknown to the duck farmers. While under the best of conditions chickens may contract any number of diseases, we find that with reasonable care the White Pekin duckling is raised with very little difficulty.

The average duck will consume about 25 to 30 pounds of feed during the growing period. Some feed manufacturers are selling ready mixed duck feeds which are popular on some farms. A great deal of time and money is spent in research work by commercial concerns to perfect their rations.

It is best to dispose of ducklings as near home as possible. Dressed ducklings bring a good price locally and the evidence is that consumption of ducks is on the increase. Where one has a good local market, he will find the production of White Pekin ducklings a profitable enterprise.

Diary of a Poultryman

By **PERCY S. WHITE**
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

Sept. 2 — Labor Day, and we did rest to some extent from our labors. The regular work had to be done and there was no question about it. The old hens in the barn are not going to get any rest. Maybe I should say that they have had all the rest they are going to, for a while, at least. Tomorrow morning the lights go on befo' day. They are going to get the works. I need some more eggs for tomorrow morning. I am going to get the works, too. There is going to be a flood of bills that will fill the R. F. D. box to overflowing.

Sept. 3 — School started today. Donnie goes to high school this year, which means that he is getting to be a big boy. It also means that the Old Man isn't getting any younger. I think this has been one of the most lonesome days I have had since Donnie started to school last year. A new arrangement with the work will have to be made. It should work itself out in a few days, but I know this much for sure . . . I will have to do more work. I found that out today.

Sept. 5 — Two coops of market stock on the auction today. Market stock sounds more high faluting than cull birds. They were cull birds from the standpoint of layers, and running gears from the standpoint of top table fowl. But they will make soup stock for chicken flavored soup, and I need the money. I can always use that.

A letter from H. M. Hyre down West Virginia way reminds me that I am to speak before the West Virginia State Poultry Association at Jackson's Mill on the twenty-fifth. He didn't say exactly what I was to talk about, so guess I had better give a broadside talk. That covers a large area and a multitude of sins.

Sept. 6 — The west house is finished, with the exception of sanding the droppings boards, making the nests, filling the feeders, turning in the water, and laying down the litter. All this sounds like the house hasn't been cleaned, but these jobs won't take long. They are rainy day jobs, if it ever rains. It is also a good policy to let everything air, for the building will stand idle for some time.

Sept. 9—I am so tired I feel like I am dragging both feet through the grave. And a pullet on the range was dragging a foot through the grave too. They will crop out . . . these birds that drag a foot or wing. If it isn't something they are dragging, then it is a gray look in the eye. I have gray eyes myself, but all this monkey business is causing my hair to turn gray, too. Kid White says it's time my hair was turning gray, but the natural course of events and being scared to death all the time are two decidedly different things.

Sept. 10—Inspector Sidle says interior egg quality is improving. That is what the industry needs, more top grade eggs. I need more eggs, too, but they will probably come later, after the lights get a chance to work on these hens. If the birds don't respond, I will have to start working on the lights. I don't like to get the lights too close to midnight, but I can move the clock up a fraction. On the other hand, one shouldn't expect birds to bloom forth in a couple of days after the lights have been started.

Sept. 11—Bloodtesting and moving were finished last night about 10:30. We are through with that phase of the work for this year. The reactors were .6 of 1 per cent, which I think is a good record.

Sept. 13—I had a live cargo on the return trip today. A few days ago, Donnie bought a registered Shropshire ram from Don Bell over at the Experiment Station. This is the best ram Donnie has ever had, and his ewes are not to be sneezed at by any means.

Sept. 14—Two deliveries of fertilizer were made this afternoon, so we won't have to store that much. All litter in the north house has been removed, either stored, delivered, or scattered on the soil. All sweeping of ceiling and walls is done. The windows have been cleaned. A little mopping up, and the house will be finished.

Sept. 16 — Wash day, and Kid White took my pants away from me and put them in the washer. I never did like this thing of washing overalls all the time. It makes them wear out too soon. And I especially didn't like the job today, for my driver's license went through the machine, too.

Sept. 17—The return load was entirely of oyster shell. It will be necessary to bring out two similar loads to fill all of the hoppers. The two hoppers in the block house take 1,500 pounds apiece. That is several bags. We like to fill all hoppers full and not have any bags around for the rats and mice to cut.

Sept. 19—A new project is on for us, and this is a real project, not a

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chore. It is landscaping the house and surroundings at the Fike farm. The job will require about 125 plants, mostly evergreens, spruce, arborvitae and junipers. I have been growing this stock for lo' these many years, and now is the time to use it. This is not only a good time of the year to do the work, but the soil is in fine condition to dig bushes and trees with a good ball of earth. This is one of the secrets of transplanting evergreens and have them live. We will have to do this work as the houses have been cleaned . . . between the regular work of caring for the birds. That is where the money comes from; the chickens.

Sept. 20 — A letter from G. S. Vickers of the R. O. P. down Columbus way. He is on the program, too, at Jackson's Mill, W. Va., where the state association is holding its annual meeting. He says that there is no need for us both to drive all that distance, and for me to come to Columbus, spend the night with him, and we will drive down to Jackson's Mill on Tuesday.

Sept. 21—The egg room has had a thorough "redding up." There was quite an accumulation of whatnot since the last time it was cleaned. All spider webs were brushed down and the floor scrubed. It really looks like a new room. Kid White has been talking about the condition for some time. There is a limit to one's patience in all things, so I finally came to the conclusion that it would be cheaper for me to clean the room. There is no war like civil war; peace is cheap at any price.

Sept. 23—The Vickers' Residence, Columbus, Ohio. I followed "Vick's" map guide to a rat's hair and found the street without contradicting myself a single time. But when a little country boy like me gets in a big city, he is very apt to get slightly confused. By the process of elimination I could have found the State House, the State Penitentiary, or Ohio State University, but out in the residential district, among all those nice big homes, I got lost. "Vick's" street winds around, twists, squirms, writhes, double S's to the right, squads east, squads west, and I ended up on the banks of the Oleutangey River . . . 2 miles past his house, in a driving rain. Upon frequent inquiry, getting out in the rain each time, I located the house. I am in the dry now and, above all, among friends.

Sept. 24—Hotel Andrew Jackson, Clarksburg, W. Va. Here I am, sick as a dog, if a dog ever gets sick from being out in the rain. A dog would have crawled under a straw stack and waited until the rain had stopped. But I had to get out of the car last night at every other house and ask if that was the Vicker's residence. I am cooped up in a hotel

room, choked up with bronchial asthma so that I wheeze and gasp for breath like a sick chicken.

Tomorrow morning I am scheduled to make a speech. Right now I haven't reserve breath enough to whisper. "Vick" is the after-dinner speaker at the banquet at Jackson's Mill tonight, so he went on down the road. He will phone tomorrow morning, and if I am well enough a car will come up for me. Here's hoping, but the prospects are not bright.

Sept. 26—Home, SWEET Home, I have looped the loops; shot the shoots. I have rounded hair pin curves amid screeching brakes and scorching tires and heard the echo thereof among the valleys of West Virginia. I have leaped from craig to craig and from precipice to precipice. Boy, they drive down in those West Virginia hills. I am home now, out where the west begins. It was one of the best meetings, I ever attended. "Vick" and I were treated like royalty. All symptoms of bronchial asthma had cleared and I was feeling good. I tried to do my duty in such a manner that they wouldn't be sorry that they had invited me to speak. They are fine people, the salt of the earth, those folks down in West Virginia.

Sept. 27—My day of wearing store clothes and shaving each morning is a thing of the past. I packed eggs all morning to make up for lost time. Then, after dinner and a few chores it was too late to get in the bank, so I decided to take the eggs to town tomorrow morning.

Sept. 30—I can see that the work is going to be the same for some time. It will be taking care of the stock and transplanting trees between at spare intervals. Harold and I rounded up the work this morning while John dug a few. He can dig the ball loose, but it takes the three of us to lift it out of the hole and to load it on the truck.

WE'VE RECENTLY come across an item describing an egg pulping machine perfected by an Australian engineer.

The machine, operating on 15 pounds pressure, has an extraction tube which pierces the egg and the contents are sucked into the machine where emulsification takes place by means of movement over a fine mesh made of rustless wire gauze. The egg contents do not come in contact with the air at any time.

With an efficient operator, says the report, approximately one ton of pulp per day is claimed to be a reasonable expectation per machine and is slightly faster than is possible by hand cracking.

Who knows about the quality of the egg?

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, July, 1941.

Hens Need Mash Hopper Space

Excerpt from a Booklet

DO you have enough hopper space in your hen house to take care of all your hens? Let us suggest that you check on your next visit to the hen house.

We find most poultrymen do not seem to realize that a large proportion of the culled hens in a flock are the weaker, more timid birds that are bossed by the stronger birds and driven away from the hoppers. If when you walk into the hen house there are several rather weak sisters who come rushing up to the mash hoppers and try to load up on mash all of a sudden, that is striking proof that you don't have nearly enough hopper space available.

As a minimum, you should have 24 feet of hopper space for each 100 hens, counting both sides. That amounts to 48 running feet of hopper space, or practically a half-a-foot of hopper space for each hen. We much prefer that hoppers be placed on the floor. The birds find it much easier to get to the feed. As a result, there is less biting, less fussing; there is more even production and definitely fewer culls.

Provide Open Hoppers

Death and injury are often the result of using flop boards, scare boards, or wires, since they make the birds nervous and excitable. If birds can get into the hoppers with their feet it apparently tastes better, since a chicken seems to have been born to scratch for its living.

As long as these floor hoppers are not overfilled, the birds do not waste feed. With 48 running feet of hopper space, there isn't the necessity of loading them as with small hoppers. In this way, all the birds can get something to eat and at any time. You should make sure to have the ends of the hoppers towards the windows or light and see that they are well up in the front of the house. If placed in this manner, the birds will not scratch them full of litter, because a chicken stands with its head toward the light and kicks into the dark corners.

Place Hoppers on Floor

Another great advantage in having the hoppers on the floor is that it stops any blind spots in the house. The birds can see everything that is going on in the hen house. It is very difficult to tame a flock of birds with table hoppers, especially if you bring strangers into the hen house. Internal injuries result many times to the birds from flying against the dropping boards and hoppers when they become scared. These injuries do not show up right away but after a time the birds dry up and die.

Then too, with floor hoppers, it is much easier to get pullets to find the mash when they are first put into the laying house. Hardly anyone has table hoppers out on the range. With table hoppers, we have seen pullets come in and stand around looking for feed several days before finding it. With floor hoppers they stumble into it if they fail to see it any other way.

If you have been running one 10-foot hopper for each 100 hens in your house, upon legs, we believe it safe to say that you would increase your egg production at least two dozen eggs per bird for the year by having the right amount of hopper space on the floor. The livability of the birds will be increased and culling the number of chickens down to the amount of hopper space will be unnecessary.

From "Save On Feed Costs," Copyright 1941 by The Quaker Oats Co., Chicago, Ill.

Eradicating Tuberculosis from Poultry Flocks

Experiments which have been conducted jointly by Iowa farmers and the Iowa department of agriculture show that avian tuberculosis can be eradicated from farm flocks by:

1. Killing and burning all birds that show symptoms of the disease.
2. Hatching and brooding all young chicks artificially so they will not come in contact with old birds that may be carriers of the disease.
3. Using clean ground for brooding and rearing chicks.
4. Selling all old birds early in the summer and fall as they slack up in production, so they will not be on hand to mingle with the young birds and give them the disease.
5. Cleaning and disinfecting all hen houses thoroughly before young birds are put into them.
6. Cultivating yards wherever possible, and rotating them so as to have fresh ground that is not contaminated with disease germs, worm eggs, etc.
7. Removing all hiding places where sick birds may crawl to die.

—Veterinary Medicine, August, 1941.

FEED manufacturers report that poultry feeds accounted for 51 per cent of total mixed feed sales in Ohio for 1940, according to the Ohio Bimonthly Bulletin, July-August, 1941.

SOME 32 establishments are licensed by the U. S. Department of Agriculture to produce poultry biologics. In 1940, they produced 60 million doses of such products.

VIEWS OF THE EDITORS

Thorns of the Rose

The current agricultural picture in the United States is such a pleasant one, especially from the viewpoint of the dairy, poultry, and livestock farmers, that it seems a shame to hunt for flaws in it. Among practical farm leaders, however, there is an increasing realization of the fact that flaws—important ones—do exist, and that now is the best time to try to remedy them.

The chief worry is that the experiences of wheat farmers during the last World War are going to be repeated, the victims this time being the producers of dairy and poultry products. In those years, our European allies needed wheat. American farmers were urged to grow more, and American consumers were urged to eat less. They did.

Everybody knows what happened. Our wheat farmers extended themselves to buy new land, new machinery. When the war ended, the European outlet for our wheat dried up. It never came back even to the pre-war normal, because Europe had learned to eat less wheat, and to grow more of its own. And Americans themselves, urged in war days to eat less wheat, never returned to their pre-war consumption of it. That was the beginning of agricultural depression in America.

Now, the call for food for Britain is not for wheat, but for dairy and poultry products and meat. Our farmers are being urged to produce more milk, more eggs, more hogs. At the same time, the American people are being urged to eat less butter and cheese, and to turn to substitutes.

There are not many persons in this country who are not in accord with the principle of aiding Britain with food as well as with guns and planes, but if the debacle experienced by wheat farmers after the first World War is to be avoided by the poultrymen and the dairymen, they should insist that federal government policies be thought through clearly from the standpoint of our own national self-interest.

There was much discussion of this subject at the recent convention of the International Baby Chick Association at Kansas City. A number of leaders pointed emphatically to the danger in allowing Americans to lose the egg habit in order to meet a temporary emergency abroad. At the same time, poultrymen were urged to keep egg prices in line with the consumer's dollar. Too high prices and substitution of other foods for eggs will ruin the poultry industry.

The retiring president of the association, L. E. McConkey, voiced the warning when he said that "the poultry industry may be fighting for its very existence in three or four years."

The government fully recognizes its responsibility in asking for increased production, M. L. Wilson, director of extension for the United States Department of Agriculture, told the hatcherymen. He said that if at a future time European needs for poultry and dairy products should disappear or an increased price depressing surplus should result from the increase now being asked, Uncle Sam will stand behind the farmer.

That is a nice promise, but what Dr. Wilson apparently had in mind was that Uncle Franklin Delano or Uncle Henry Agard would stand behind the farmer with a few millions or billions of tax money. That will not be a satisfactory solution. A far better corrective measure, in the minds of poultrymen and dairymen, will be to cease urging the American people to substitute other foods for eggs and butter and cheese and instead to build up the domestic market for those products. This can be done and Britain's needs can be met as well, with long range instead of emergency planning.

—Feedstuffs, Aug. 2, 1941.

Priorities

The protection of farm production with adequate priorities covering the manufacture of farm equipment is necessary in completion of any farm program. It is surprising that it has to be made an emergency issue for the farmers. Yet that's just what it is. In every state, the producers are worried. They are finding it harder to get what they need when they need it. It isn't alone the poultryman's problem. It bothers the dairyman, the fruit grower, and the field crop farmer. The manufacturers can't get the materials to build equipment. Hence, the farmers must form committees and complain and resolve.

But the stupid part of it that riles me up is the fact that while all the OPM supply fellows were sewing up our metals for "defense" purposes, the advisors of the Department of Agriculture were working out new percentages of how much extra crops the farmers had to raise to do their bit in National Defense. It reminds me of the story of the slave who was ordered to make a pair of shoes, and his thoughtless master gave away his cobblers tools. He needed more than willing hands. So do our farmers. Some one has to think of their problems, too.

—Leavitt C. Parsons, New England Poultryman, Aug. 15, 1941.

Permanent Control?

Defense being such an important subject, quite a few government men appeared on the baby chick convention program in Kansas City in July. Referring to the efforts to stimulate egg production to help feed Britain, one of them declared, "We are able to tell the farmer that he won't be left holding the bag when increased demand drops off . . . The guaranteeing of minimum prices and the existence of national farm programs which can be geared in the months and years ahead to meet the farmer's needs are the answer to that problem."

We wish he would have gone into more detail. Did he mean that the poultry industry will be subjected to the same kind of control that wheat and cotton growers now have? Are we going to be given quotas on the number of chicks that we will be able to start? Will all chicks be produced in hatcheries under government supervision? Are we going to be required to have marketing cards before we can sell our eggs?

Under war-time conditions, we can expect quite stringent government controls. They are essential to winning a final victory. And poultry raisers should lend their full support to Secretary of Agriculture Claude Wickard's request for increased egg production to aid Britain.

There is no reason, however, why we should not look ahead to that time when the emergency is over, when the war-torn countries of Europe will no longer need our eggs, and when we have a surplus to deal with. It would be a strange paradox if our efforts to help crush Hitler would result in our own adoption of the European system under which the farmer, worker, or businessman virtually can make no moves without the approval of some government official.

Such prospects impose serious responsibilities upon leaders in the poultry industry during the next few years, particularly when the emergency is over. The trend toward the "planned economy" may be too strong to stop, despite the fact that no one can point to its success in past history. The poultry industry should resist any attempts, if they be made, to make government control of supply and demand a permanent thing for the poultry business.

—Everybodys Poultry Magazine, September, 1941.

Beware of Prosperity

For the first time in many a year, egg checks are showing a substantial margin over and above feed costs. This is a condition of which the poultryman has dreamed in his worried sleep, but which he has despaired of ever living long enough to see come true.

As a result of our improving situation, there is a strong tendency in all of us to be "nigger rich," that is, spend our money as fast or even faster than we get it by buying on credit, conditional sales contracts, etc. And no one is more entitled to spend a little money than the poultryman. However, a few moments of stock-taking may result in spending our new-found dollars to much better advantage.

Getting a new car at once just because you're fed up with the rattles and wheezes of the old jalopy may not be the most economical move you can make. Perhaps the old jalopy will hold together for another winter, and some much needed improvements can be made around the home place. A new coat of paint on the house and poultry buildings, or a new roof on your poultry houses may be more important now than a new car. Automobile prices may be advancing, but along with them will go the price of roofing, paints, fencing, and other supplies needed in the maintenance of your farm.

You may well invest your additional income in a farm refrigerating system, with a walk-in cooling room, a zero box, and a kitchen refrigerator, all operated from the same motor and compressor, at installation costs of only a few dollars more than the city home owner pays for a commercial home refrigerator. The average farm family is a heavier food buyer than the average city family, and too many farmers buy back some of their own canned peas from the store, paying a dollar for the peas which they received 14 cents for at the cannery.

Everyone likes to own a new car. It looks shiny and prosperous and makes the owner feel the same way. But farm families should think twice before mortgaging their future for the doubtful satisfaction of buying something new unless the home place is operating on as nearly a self-sustaining basis as is economically possible.

—Washcoegg, July, 1941.

Have You Had Your Scratch Feed Today?

The average California hen ought to snub you. She is better fed than you are. She has more pep. She sings more at her work.

And she has more sense than you have. Put her before a choice of food, and she will eat the right things, rather well balanced as to proteins, carbohydrates, vitamins, minerals, and greens.

So she is in condition to lay eggs.

In the popular slang you too "lay eggs," but it is nothing to cackle about.

The "you" in this case is not personal. It is most of us.

We have never done as well as we know in the matters of eating. But since proper eating has become a matter of national defense, we may well face our deficiencies and try to improve.

The matter was dragged into public view recently by Dr. Samuel Lepkovsky, University of California scientist, at a meeting at Pomona.

He had pointed out that poultrymen were careful about the diets of their hens, but careless about their own eating.

"In these days of preparedness, physical and mental energy must be conserved," Doctor Lepkovsky said. "As a people, we must devote as much thought to our own nutrition as is given to the feeding of poultry and livestock."

A poultryman injected additional spice into the meeting by asking Doctor Lepkovsky if people should eat chicken feed.

The Doctor, of course, would not put human beings on laying mash and scratch feed. But he observed that some people might be healthier if they would do so.

In the midst of plenty we starve.

Well, something like that.

We may not guard our waistlines, but in our unbalanced, unwise eating, we may starve our health.

Many do.

But hens know better.

There is a widespread belief that hens are not very smart.

—Pacific Rural Press, Aug. 9, 1941.

Management Comes First

In most agricultural work, one is in constant thought of the importance of knowledge as compared to one's ability to manage. No doubt the two go together, but if one was forced to make a choice between knowing what to do, or how and when to do it, combined with the faculty of getting the job well done and on time, which is the important point? There may be no answer, because seldom, if ever, does one lack knowledge when he or she has the ability to manage and direct. If knowledge is lacking, one soon gets it.

Ability to plan and manage are exceedingly important under present conditions. One is almost forced to the conclusion that many people have abundant information but lack that something to put it into action.

It now looks 'as though every laying hen and pullet will be requested to do the best possible for the duration. The eggs will be wanted for overseas, and they must be produced economically. The crop of laying birds for the next year is pretty well settled. The number of eggs from these birds is now a question of management and feed.

I put management first, for the reason that there appears to be more good feed than good managers. The problem for everybody with a flock of laying birds is how best to manage that flock in order to get the maximum possible eggs during the next 12 months.

Good management involves comfortable houses, regular feeding, clean drinking utensils, clean pens, etc. Or perhaps it is the careful attention to the things we think are not so important.

Only today, I was on a farm where they were digging a very fine crop of potatoes. In conversation, the owner remarked that each year

he was gradually learning that the preparation of the land for the crop was most important. In other words, land well worked gave a crop, even if the weather was not ideal.

Getting more eggs to Great Britain can best be done by employing the best methods of poultry flock management, rather than through many more birds in overcrowded quarters and under generally unfavorable environments. Better take care of what you have before you hope for more, with the probable greater loss.

Get increased production from the birds you have, rather than increase the number of birds, unless you know you can manage them. If you are sure, go ahead and increase.

I am frequently asked how many hens an owner should have before he manufactures his own feed. Also, if grain can be grown cheaper than you can buy it. Most of you know two people who are successful in the poultry business, one grows his own feed because it has quality and is cheap, while the other mixes his purchased feed, because it costs too much to grow it. What would happen if the managers were reversed?

—W. R. Graham, Canadian Poultry Review, August, 1941.

Green Marbles for Turkeys

One of the problems in raising turkeys is teaching the young stock to eat satisfactorily. Cottage cheese or custard placed daily in the mash is one method now in use. The cutting into small pieces of tender green alfalfa and placing of this on the mash is another method. Although satisfactory, these methods involve considerable time and work. At the Larro Research Farm at Detroit, green marbles placed in the mash is the method now in use. The poults pick at the green marbles and soon learn to eat the mash. Marbles of different colors were tried, but green seemed to be most attractive to the poults.

—Michigan Farmer, Aug. 9, 1941.

¶ FALCONS have been ordered for the U. S. Army's Signal Corps headquarters at Fort Monmouth, N. J., for a tryout as a weapon against racing pigeons and parachutists. The batch of birds was scheduled to arrive from California about August 10. Lieut. Thomas MacClure, directing the experiment, hopes to train the birds to rip descending parachutes with circular knives strapped to their breasts. They also would pursue enemy pigeon messengers.

—American Pigeon Journal, August, 1941.

Government Turkey Breeders Produce Small-Type Bird

By S. J. MARSDEN
U. S. Department of Agriculture

Reprinted from Turkey World

THE original turkey, the North American wild species and its five varieties, was and is a small bird. No one seems to have accurate data on how much it weighed, but it appears that 10 to 12 pounds alive for the males and 6 to 8 for the females would be somewhere near what the hunter might expect, if he waited until late fall and had good luck in connecting with a well-fed flock. Genuine wild turkey toms, when raised in captivity, and fed well, average about 12½ pounds alive at 28 weeks of age, while hens of the same age average about 8½ pounds.

Using the wild stock as a starting point, the early turkey breeders almost immediately started to increase the size, and this tendency to breed for large size has persisted up to and including the present time. This is perhaps nothing but a manifestation of the typical American idea of growing all things bigger and better! And it was a good idea, because the larger, meatier birds found favor on markets all over the country.

The reason for this is not hard to find, for the turkey, up to the early 1930s, was a luxury product used mainly by the well-to-do, and then only, as a rule, during the holidays. It also was used by high-class restaurants and hotels, but mainly as a holiday treat for which a high price was asked and gladly paid. Both of the afore-mentioned classes of trade wanted comparatively large birds, for obvious reasons. This favorable situation lasted until the early thirties, when a premium could still be obtained for large prime toms, and there was never any price differential in favor of small birds which were, on the contrary, frequently discounted.

Turkey Now a Staple Food

When growers generally found that turkeys could be raised in commercial quantities and with pretty uniform success, turkey production stepped up from 16½ million birds in 1929 to almost twice that number 10 years later. Simultaneously, turkey meat fell from its high place as a luxury product to a less exalted position as a staple food product, albeit a high-class one.

The fact that the demand for

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, June, 1941)

large turkeys has increased, though not at a rate commensurate with the increase in number and size of turkeys produced, has helped to keep the price differential between large and small turkeys from becoming greater than it is. There are many possibilities of increasing the use of large turkeys, and the differential, that during the 1940 marketing season reached 7 cents per pound in favor of small birds over large ones, may be reduced instead of increased.

Costs Cut with Large Birds

Smoking turkeys, selling turkey

is proof that they are more in demand. If that demand can be changed, all well and good, it will not be desirable to raise smaller birds. But if the demand persists, as seems likely, the turkey industry, whether it likes it or not, will either have to satisfy that demand or lose the opportunity to produce more turkeys, and by and large, more tonnage. The United States is turkey-conscious, and herein lies a tremendous opportunity—and a job for the organizations working for the betterment of the industry.

The culmination of the trend to large turkeys is the Broad Breasted Bronze, a bird which combines large size with superior market quality. This turkey has taken the country

why the small-type turkey breeding project was inaugurated by the U. S. D. A., and how the work is being carried out.

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Costs Cut with Large Birds

Smoking turkeys, selling turkey meat by the pound in any amount desired, promoting turkey steaks, and finally, passing part or all of the price differential on to the consumer, may serve to turn the tide. The writer of this article, although committed to experimental breeding of small-type turkeys, recognizes, as do most turkey growers, the advantage that comes to the producer from being able to raise a good-sized bird rather than a small one. Everything else being equal, the larger the bird unit, the lower the overhead cost of production.

However, prices are still determined by the familiar law of supply and demand, and the fact that small turkeys now generally bring more money per pound than large ones is proof that they are more in demand. If that demand can be changed, all well and good, it will not be desirable to raise smaller birds. But if the demand persists, as seems likely, the turkey industry, whether it likes it or not, will either have to satisfy that demand or lose the opportunity to produce more turkeys, and by and large, more tonnage. The United States is turkey-conscious, and herein lies a tremendous opportunity—and a job for the organizations working for the betterment of the industry.

The culmination of the trend to large turkeys is the Broad Breasted Bronze, a bird which combines large size with superior market quality. This turkey has taken the country by storm, and the resulting widespread production of large birds is certain to raise the average size of turkeys produced. Possibly, the improved appearance and greater quantity of meat carried will help to offset the larger size. It may be, as mentioned before, that the sale of large turkeys can be stimulated. Broad Breasted turkeys do not have to be overly large, however, and can easily be reduced in size by selective breeding and by crossing with smaller varieties to reduce the size and still maintain the fine market qualities.

Why Small Turkeys?

With this background of discussion, we now undertake to tell why the small-type turkey breeding project was inaugurated by the U. S. D. A., and how the work is being carried out.

Here are some reasons for selecting the production of a small-type turkey as a major experimental project:

1. To conduct a practical breeding experiment to find out, through research methods, what can be done by selective pedigree-breeding (which has not yet been applied extensively to turkey production).

2. To produce a true-breeding strain of turkeys that meets, in both toms and hens, what is believed to be the demands of the growing retail trade in dressed roasting turkeys.

3. To attempt to produce a turkey genetically free from serious defects that might affect its economic value. Many modern strains have such defects.

The U. S. D. A. is making no attempt, and will make no attempt, to persuade anyone to raise small-type turkeys or to promote the use of the particular strain now being developed. The department simply is experimenting with the development of a small-type turkey, and if this turkey finds a place in the industry, the stock eventually will find its way into the hands of growers and breeders.

At the start of the project, in 1934, a set of breeding objectives was outlined as follows, and the breeding work since then has been directed toward these objectives.

Color: White

Size: At 24 weeks of age, toms to average alive 15 pounds, with a range of 12 to 17 pounds; females to average 9 pounds, with a range of 7½ to 10 pounds. On a blood-and-feather-dressed basis, the averages are 13 for males and 8 for females.

Conformation: Compact body with moderately short legs; moderately long keel bone; broad, well-meated breast; and plump, well-fleshed legs.

Early maturity: Both males and females to be in finished (U. S. Prime) condition at 24 weeks of age. This means well-fleshed, well-covered with fat in the skin, and comparatively free of pin-feathers too short to be cleanly plucked.

Performance: Reasonably high egg production—a minimum of 50 per cent from beginning of production to June 1.

Egg quality: Strong, smooth shell, or normal shape and medium size. (Average of 82 grams or 2.9 ounces each, which is 35 ounces per dozen.)

Fertility: A minimum of 90 per cent.

Hatchability: A minimum hatchability of 80 per cent of fertile eggs.

Livability: A minimum of 85 per cent poults raised to market age.

Breeding Stock

The first of the original breeding stock was purchased in 1934, and several more strains were purchased in 1936 and 1937. There were, in all, two of the so-called "Baby Beef" Bronze (not Broad Breasted Bronze), one strain of small-type Bronze, five strains of wild turkeys, one strain of Blacks, one strain of Narragansetts, seven of White Hollands, and one of White Austrians, imported from Scotland.

Several of these strains were eliminated because they contributed undesirable characteristics or failed to contribute worthwhile characteristics. Various crosses were made of a white strain with a colored one. When the colored crossbreds were bred together or to white specimens, a certain percentage of true-breeding recessive whites resulted, and the best of these were selected as breeders.

Since the offspring of two white birds are always white, breeding for white color presents no difficulties. The system of mating being followed is a line-breeding scheme involving seven breeding pens, each consisting, as a rule, of one tom and 20 or 21 hens. All breeding pens are fed and managed in the same manner, and the young stock is fed, brooded, and reared in a favorable environment which is kept as uniform as conditions permit.

Breeders Under Lights

The breeding stock is given morning lights from 4 a.m. to daylight from January 15 until daylight replaces the artificial light. An all-mash, 16-per cent-protein breeder diet is fed, and the birds are trapnested from start of production to June 30. They are given access to a bluegrass range lot. The eggs are held at 55 degrees Fahrenheit, and set at intervals of one to two weeks. The eggs and the resulting poults are individually pedigreed.

The following data are obtained, and through the use of these data the selections for the breeding pens are made: Trapnest records—number of eggs laid, broody periods; egg-quality observations—shape, size, and shell texture of a fair sample of April eggs; fertility; hatchability of fertile eggs; brooding records—mortality, defects, deformities; weight records—individual bird weight at 2, 4, 8, 16, and 24 weeks, and in some cases every two weeks up to 36 weeks of age. Breeders are weighed on January 15 and February 12 to obtain midwinter or "standard" weight; and 24th-week observations—caliper measurements of keel, shank, and depth; grading of each bird on breast fleshing, leg fleshing, state of feathering, and quantity and distribution of fat in the skin.

After all young stock has attained the age of 24 weeks, the data are summarized and preliminary selections for the breeding pens are made. Selections are based on family performance, by means of the progeny test. Stated simply, the best individuals from the best-performing families are selected as breeders. Each breeding hen and her progeny constitute a family. All individuals from low-ranking families are discarded, regardless of individual quality. A mediocre individual from a high-ranking family is preferred to a superior individual from a low-ranking family.

Results are Encouraging

The results to date have been encouraging, but all breeding objectives have not yet been reached. So far, 1941 fertility has averaged approximately 95 per cent and hatchability approximately 80 per cent of fertile eggs. In 1940, egg production averaged about 59 eggs per (young) hen to June 1. April eggs averaged to weigh 82 grams each (35 ounces per dozen), and the unweighted average of the young male offspring from the seven breeding pens at 24 weeks of age was approximately 14.2 pounds (alive) and of the hens 8.5 pounds (alive). At 24 weeks of age, 46.3 per cent of the young toms and 45.9 per cent of the young hens graded U. S. Prime or better, and the mortality from non-accidental causes was 16.52 per cent.

In two groups involving 220 birds, it required a total of 4.53 pounds of feed to produce a pound of live turkey at 24 weeks of age, and a total of 4.80 pounds to produce 28-week-old birds. The birds were raised on wire to 8 weeks of age and on bluegrass range thereafter. The feed consumption of 4.53 pounds per pound of live turkey produced at 24 weeks of age is slightly under the figure of 4.59 pounds for range-grown standard-size Bronze stock at 28 weeks, and slightly over the figure of 4.05 pounds for range-grown standard-sized Bronze stock at 24 weeks obtained by the writer in Montana.

Advantages of Small Birds

Certain disadvantages in the breeding and raising of small-type turkeys have been mentioned. There are also some advantages which help to offset the disadvantages. Among these are:

1. Larger numbers of individuals can be accommodated with a given set of equipment or on a given area of land.

2. Breeding hens can be successfully mated 20 or more to one young tom. Saddles are not required.

3. The rearing season, shorter by 2 to 4 weeks, saves labor and permits the successful use of June-hatched poults to produce Christmas turkeys.

In conclusion, it should be said that the medium-sized turkey, which has not been specifically mentioned, is an important consideration. Many strains of turkeys of all varieties, especially the Black, Narragansett, Bourbon Red, and White Holland, are intermediate in size and fit into the picture admirably. In fact, some strains of these varieties are but little larger than the small-type white, and therefore fill the need for family-size birds. These strains are already becoming quite widely raised where turkeys go directly into the retail trade. There is little doubt that increased production of small to medium sized turkeys will help the turkey business, and will help to preserve the market for the large birds for the benefit of those who are best equipped to raise them.

Examine Pullets' Eyes at Housing Time

In selecting pullets that are to go into laying houses, it is very much worthwhile to examine their eyes. The importance of the appearance of the eyes of chickens, especially those that are to be used as breeding stock, has been stressed by several workers during the last few years.

The eyes may be classed as normal if the iris is orange and the pupil round, and as abnormal if the iris is brownish-gray or blue and the pupil is not round. Poor production and high mortality usually are more closely associated with an abnormal color of the iris than with an abnormal shape of the pupil. However, mortality is usually greatest when both types of abnormality occur simultaneously.

According to Dr. J. B. van der Meulen, of Holland, who has studied the relationship between the appearance of the eyes and mortality and production, pullets that have only one abnormally colored eye have about the same mortality rate as those that have both eyes normally colored, but their production rate is not much better than that of pullets that have two abnormally colored eyes.

The advisability of keeping pullets that have distinctly abnormal eyes may be seriously questioned. However, if such pullets are kept, it is best not to house them with pullets that have normal eyes. The obvious reason is that abnormal eyes are usually an indication of disease.

—**Harry W. Titus, Poultry Tribune, September, 1941.**

DOWN in tropical Honduras, the natives bore small holes in eggs before boiling them. When asked WHY they do this, the answer is: "How else may the hot water get into the egg to cook it, if a hole is not made in the egg to admit it?" Even when shown that an egg will boil nicely without the shell-hole, they still stick to the old native custom.

—**Poultry Tribune, July-August, 1941.**

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	July 1	Aug. 1	July 1	Aug. 1	Aggregate Jan.-Aug.	July 1	Aug. 1	Aggregate Jan.-Aug.
North Atl.									
1930-39 (Av.)	97.5	77.4	75.2	48.6	44.5	367	37.7	33.7	316
1940	97.2	74.2	71.6	50.8	46.9	386	37.8	33.7	326
1941	95.4	76.4	74.2	51.4	47.7	401	39.3	35.5	340
E. N. Cent.									
1930-39 (Av.)	108.8	83.4	79.0	45.5	39.6	336	38.1	31.5	321
1940	110.8	83.5	79.4	47.8	42.7	353	40.1	34.0	340
1941	110.3	85.6	80.8	49.3	44.1	371	42.3	35.9	356
W. N. Cent.									
1930-39 (Av.)	117.6	90.1	84.0	42.5	35.4	309	38.2	29.9	318
1940	118.6	92.3	84.9	46.3	39.6	328	42.7	33.8	347
1941	116.1	91.5	86.5	47.9	41.9	350	43.8	36.4	364
South Atl.									
1930-39 (Av.)	58.6	46.6	45.0	40.8	36.7	321	18.8	16.3	164
1940	59.9	47.1	45.6	43.0	40.4	336	20.0	18.1	178
1941	59.4	46.1	44.9	44.0	40.2	351	20.0	17.6	179
South Cent.									
1930-39 (Av.)	64.4	49.0	48.4	38.5	33.0	309	18.9	16.0	172
1940	65.8	49.4	47.7	42.1	36.6	314	20.7	17.3	176
1941	62.7	49.6	48.5	44.5	38.6	344	21.9	18.7	189
Western									
1930-39 (Av.)	73.2	60.2	59.0	48.7	43.8	363	29.4	26.1	238
1940	73.7	58.9	56.4	48.4	44.4	376	28.6	25.1	241
1941	71.6	58.5	57.4	49.2	44.6	378	29.3	25.7	240
United States									
1930-39 (Av.)	84.0	65.0	62.4	43.4	37.7	327	27.9	23.3	239
1940	85.1	65.3	62.0	46.2	41.0	342	29.8	25.1	252
1941	83.2	65.5	62.9	47.7	42.4	361	30.9	26.4	263

Egg production in July, equivalent to 9,733,000 cases was the largest July production since 1929. It was 4 per cent larger than the July production of last year and 9 per cent above the 10-year (1930-39) average. Most of the increased production was due to a record high rate of lay, since the average number of layers increased less than 1 per cent over last year. Increases in production were 6 per cent in the East North Central and South Central states, 5 per cent in the North Atlantic, and 4 per cent in the West North Central states. Production was about the same as last year in the Western states. The South Atlantic states showed a decrease of about 3 per cent.

The aggregate egg production for the United States during the first 7 months of this year was the largest since the record production of 1930. It exceeded the aggregate of these seven months last year by 3 per cent, the

10-year average by 7 per cent, and was only 2 per cent smaller than the record high production for this period in 1930, when the number of layers was 10 per cent larger.

The rate of egg production per layer during July reached a record high of 13.81 eggs, compared with 13.38 eggs last year and 12.70 eggs, the 10-year average. The aggregate production per layer of the past 7 months was the largest of record and exceeded the previous high in 1938 by 1 per cent. This year's July rate exceeded last year in all parts of the country, and exceeded the 10-year average everywhere except in the Far West, where the decrease was 3 per cent.

Farm flocks during July averaged 253,686,000 layers, which was the largest number since 1933. Numbers of layers exceeded last year by 1 per cent and were about equal to the 10-year average. Judging from the large increase in young pullets now on farms, the laying flocks this fall will be 8 to 10 per cent larger than last fall. Numbers of layers are up in the North Atlantic, East North Central and South Central areas, and down in the West North Central, South Atlantic and Far Western areas.

Because of much larger hatchings this year (especially late hatchings during July) the number of pullets not yet of laying age on August 1, available for later addition to laying flocks, was 19 per cent larger than last year and 7 per cent larger than on August 1, 1939. The increase over last year was most pronounced—about 25 per cent—in the West North Central States. Numbers were larger by 23 per cent in the North Atlantic, by 21 per cent in the South Central, by 19 per cent in the West, by 13 per cent in the East North Central, and by 11 per cent in the South Atlantic states.

The increase in pullets of non-laying age is greater by 5 per cent than the preliminary estimate of gain in chickens raised this year. Usually, about two-thirds of the layers on hand on January 1 are pullets of the previous year's hatch. If the August 1 increase in pullets of laying age were to be maintained on January 1 and the number of older hens should be as great as last year, an increase of about 12 per cent in layers would result. However, the August 1 figure of non-laying pullets includes an unusually large proportion of late-hatched pullets, still subject to a rather high mortality before reaching laying age. Therefore, the reported 19 per cent increase in pullets not of laying age is not likely to result in an increase in hens as great as the present sample might suggest. An increase of from 8 to 10 per cent would appear more likely.

The increase in the production of commercial broilers has been amazingly rapid, and output will probably exceed 150 million birds this year. Broiler production has apparently increased from 20 to 30 per cent annually for the past half dozen years. Of the total production of commercial broilers, about 60 million will come this year from Delaware and the Eastern Shore Counties of Maryland and Virginia, comprising the Del-Mar-Va Peninsula. About 15 million will be produced in Arkansas and from 5 to 10 million each in California, Texas, Connecticut, Illinois, and North Carolina. A dozen other States will supply one to several million each.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Receipts at the four larger markets during the week ending August 2 exceeded those of the corresponding week last year by 21 per cent while a comparison for the week ending August 23 showed this year's receipts to be 10 per cent below last year. The decline in 4 market's receipts during the three-week's period was over 30 per cent. These declines followed a period of sustained high production, which for July was estimated at 9,733,000 cases. This was the largest for the month since 1929, 4 per cent above last year, and 9 per cent above the 10 year (1930-39) average. Receipts at central-western packing plants paralleled the decline noted on terminal markets. Pacific Coast receipts, however, held fairly steady and more nearly approached the level of a year earlier. Contrary to the sharp decline in the midwest, eastern egg production showed some evidence of increase, as receipts at auctions showed weekly gains from the first of August with receipts running over 20 per cent heavier than a year ago toward the close of the month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	Cases of Eggs 1941	Cases of Eggs 1940	% Change from Previous Week	% Change from Last Year
August 2	61	49,385	51,625	+3.66	–4.34
August 9	60	48,223	50,448	–2.01	–4.41
August 16	60	48,909	50,712	+1.42	–3.56
August 23	61	49,641	50,334	+1.04	–1.38
August 30	62	50,275	50,068	+0.76	+0.41

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
August 2	27	24,500	+1.96	+ 9.66
August 9	27	28,088	+1.42	+18.88
August 16	26	27,396	+2.50	+21.01
August 23	27	28,090	+1.00	+14.33
August 30	24	23.610	+5.26	+20.66

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs			Pounds of Poultry (000 omitted)			Pounds of Young Stock (000 omitted)			Pounds of Fowl (000 omitted)		
	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.	1941	1940	% Chg.
Aug. 2	168,070	90,888	+ 84.92	4,174	4,067	+ 2.62	2,220	1,563	+42.02	1,837	2,369	–22.43
Aug. 9	165,343	85,286	+ 93.87	4,652	4,334	+ 7.33	2,454	1,702	+44.13	2,067	2,512	–17.68
Aug. 16	141,050	66,439	+112.30	4,662	4,186	+11.36	2,549	1,910	+33.47	2,002	2,167	– 7.60
Aug. 23	108,090	67,612	+ 59.87	4,946	4,396	+12.52	2,993	2,342	+27.80	1,864	1,953	– 455
Aug. 30	112,659	59,742	+ 88.57	4,900	4,757	+ 3.00	3,184	2,742	+16.10	1,631	1,941	–15.98

—Compiled from U. S. D. A. market reports.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	July 1941	July 1940	July % change	Jan. to July, Inc. 1941	Jan. to July, Inc. 1940	Jan. to July, Inc. % change
New England	25,663	24,225	+ 5.94	322,031	295,159	+ 9.10
Middle Atlantic	160,625	157,801	+ 1.79	1,519,433	1,452,060	+ 4.64
South Atlantic	15,189	16,502	– 7.96	165,557	199,215	–16.90
East North Central	200,243	225,499	– 11.20	2,314,374	2,303,925	+ 0.45
West North Central	689,279	705,144	– 2.25	5,231,390	5,834,410	–10.34
South Central	4,254	1,595	+166.71	71,360	73,426	– 2.81
Mountain	132,510	36,241	+265.64	267,927	252,840	+ 5.97
Pacific	23,841	31,767	– 24.95	74,660	287,850	–74.06
Miscellaneous	190	353	– 46.18	2,664	3,590	–25.79
TOTAL	1,251,794	1,199,127	+ 4.39	9,969,396	10,702,475	– 6.85

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic Section	July 1941	July 1940	July % change	Jan. to July, Inc. 1941	Jan. to July, Inc. 1940	Jan. to July, Inc. % change
New England	1,403,958	1,778,698	– 21.07	5,433,851	7,614,305	–28.64
Middle Atlantic	7,641,488	5,752,836	+ 32.83	33,261,977	26,041,577	+27.73
South Atlantic	3,860,460	1,989,602	+ 94.03	22,580,477	14,961,120	+50.93
East North Central	1,873,153	2,420,544	– 22.62	18,453,964	20,449,259	– 9.76
West North Central	9,760,351	12,734,575	– 23.36	64,289,260	79,625,069	–19.26
South Central	2,271,384	843,071	+169.42	12,342,131	11,075,570	+11.44
Mountain	603,579	270,391	+123.22	3,102,083	3,162,419	– 1.60
Pacific	922,043	661,757	+ 39.33	8,219,131	9,796,457	–16.10
Miscellaneous	0	0	–	0	128,680	–
TOTAL	28,336,416	26,451,474	+ 7.13	167,682,874	172,844,456	– 2.99

* New York, Chicago, Philadelphia and Boston.

Egg-Feed Ratios

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
July	6.71	7.54	7.36	6.28	8.91	7.75
Jan.-July	7.34	9.39	7.65	7.82	9.80	7.53
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration			Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	10-Yr. Avg. 1931-40	1941	1940	1941	1940
August 2	5.32	7.78	6.59	.267	.157	1.423	1.225
August 9	5.47	7.54	6.64	.267	.157	1.464	1.187
August 16	5.39	7.17	6.45	.269	.163	1.450	1.172
August 23	5.24	7.08	6.25	.280	.165	1.467	1.168
August 30	5.13	6.78	6.11	.292	.174	1.498	1.180

—Compiled from U. S. D. A. market reports.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
August 1	7.0	9.5	6.8	.322	.20	.241	2.27	1.89	1.62
August 8	6.8	8.6	6.8	.33	.22	.238	2.23	1.88	1.62
August 15	6.9	7.5	7.0	.335	.247	.239	2.31	1.84	1.68
August 22	6.9	7.3	7.0	.337	.252	.239	2.31	1.84	1.68
August 29	6.8	7.2	6.5	.349	.257	.256	2.37	1.85	1.67

—Compiled by N. Y. State Department of Agriculture and Markets.

Egg Prices

Egg markets were firm with a definite upward price trend throughout August, the U. S. D. A. reports. Although price advances are normally expected at this season, they are particularly noticeable this year, as they started from the relatively high level maintained during the season of heaviest production. Sharp declines in production; increasing out-of-storage movement; and purchases of shell, frozen and dried eggs by the Federal Surplus Commodities Corporation were the principal factors lending strength to the markets.

Prices on midwestern and eastern markets advanced 2 to 8 cents and on the Pacific Coast 2 to 5 cents on the various grades of eggs. Margins of 10 to 12½ cents per dozen over last year's price levels were general. Chicago Firsts, at 28½ cents near the close of the month, were 65 per cent higher than on the same date last year; and New York Extras, at 34 cents, were 60 per cent higher.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Aug. 1	Aug. 8	Aug. 15	Aug. 22	Aug. 29	Aug. 29, '40
Mixed Color Firsts	27	27¼	28	28¾	30	18½
Nearby and Midwestern White Premium Marks	33-35½	35½-38	34-36½	35½-38	37½-40	27-29½
Nearby and Midwestern White Exchange Specials	32-32½	33½-35	33-33½	35	37	26½
Pacific Coast Specials	37-37½	37-38	38½-39	40½-41	42-43	33¼-33¾
Nearby and Midwestern Brown Specials	30½	32½-33	32½-33	35	35½	24½-25

Mid-Month Farm Price of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1	23.2	25.6					

Government Purchases

Purchases of whole eggs by the Federal Surplus Commodities Corporation were fairly heavy the first half of August, but tapered off to the point where only one car was accepted on August 26. Purchases the four weeks ending August 23 totaled 125,198 cases, with the total from January 1 to August 26 being 1,315,429 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Purchases of Eggs by the U. S. Department of Agriculture

Week ending as of 1941	Shell		Frozen	Dried
	1940	1941	1941	1941
	Cases	Cases	1,000 Pounds	1,000 Pounds
August 2	44,081	54,987	3,273	366
August 9	29,269	42,343	——	2,985
August 16	6,440	22,268	1,515	803
August 23	10,305	5,600	300	646
August 30	3,550	400	389	2,089

Eggs in Storage

Storage holdings in the 35 markets reached the seasonal high point the week ending August 2, with a total of 5,014,521 cases. This was approximately one million cases less than on the same date last year. Since that date, withdrawals have increased from week to week, totaling 190,000 cases for the 3 weeks ending August 23. During the corresponding period last year, stocks in the 35 markets were reduced 237,000 cases. U. S. holdings on August 1 totaled 6,653,000 cases, including 239,000 cases held by the Federal Surplus Commodities Corporation. On the same date last year, holdings were 7,784,000 cases, including 1,067,522 cases held by government agencies. Holdings in private hands on August 1 were approximately 300,000 cases less than on the same day last year, whereas on July 1 they were 450,000 cases less.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

Kind	Aug. 1 5-Year Avg. 1936-40	Aug. 1 1940	July 1 1941	Aug. 1 1941	% Change Aug. '40-Aug. '41
		Thousands			
Shell Eggs (cases)	7,454	7,784	6,427	6,653**	–14.6
Frozen Eggs (lbs.)	143,399	154,947	178,594	194,827***	+25.7
Frozen Case Equivalent (cases)*	4,097	4,427	5,103	5,566	+25.7
Total (cases)	11,551	12,211	11,530	12,219	+00.06

* Frozen eggs are converted on the basis of 35 pounds to the case.
** Includes 239,000 cases owned by the SMA and FSCC.
*** Includes 1,770,000 pounds owned by the SMA and FSCC.

Poultry Meat Prices

Mid-Month Farm Price of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3	16.3	16.8					

The dressed poultry market was irregular during August, although changes were moderate. Fowl prices declined about 2 cents, fryers about 1 cent, roasters were unchanged, and broilers advanced fractionally on eastern markets. However all classes held ½ to 3½ cents above last year's levels. Trading was of fairly satisfactory volume and price changes on certain classes more or less reflected increasing receipts and the storage stock situation.

The market exhibited some irregularity during August, although the general trend was definitely upward and the price margin above the corresponding period last year was generally maintained. Eastern market prices were unchanged to 3 cents higher by the close of the month, while Chicago prices declined on fowl and spring chickens but advanced ½ cent on broilers. All indications point to an expanded domestic consumption as the basis for higher prices. Total receipts have run fully 10 per cent above last year, with increases of fully 40 per cent in young stock more than offsetting moderate declines in receipts of fowl. It is possible that comparatively light receipts of fowl have to a large degree been responsible for current prices showing a wider margin over those of a year ago than noted for young stock.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	Aug. 1 5-Year Avg. 1936-40	Aug. 1 1940	July 1 1941	Aug. 1 1941	% Change Aug. '40-Aug. '41
		Thousand Pounds			
Broilers	7,193	6,290	4,908	6,992	+ 11.1
Fryers	2,160	1,811	3,597	3,652	+101.6
Roasters	5,007	3,633	12,044	9,305	+156.1
Fowls	12,492	18,312	13,785	14,638	− 20.1
Turkeys	15,951	29,497	28,038	19,762	− 33.1
Ducks	7,558	8,262	6,646	9,819	+ 18.8
Miscellaneous	13,485	11,817	11,701	11,961	+ 1.2
Unclassified		2,793	4,854	5,003	+ 79.0
Total	63,846	82,415	85,573	81,132	− 1.6

Hatchery Operations

A record output of chicks by commercial hatcheries in July is reported by the U. S. Department of Agriculture. Production during the month, estimated at 28,386,000 chicks, was 33 per cent larger than the output of July 1940—the previous high output for July. Although the production of chicks during July is only a small part of the annual production, the increase reported signifies the optimistic feeling of both hatcherymen and producers.

As a matter of fact, the production of baby chicks during July would have been much larger had a supply of good hatching eggs been available. Hot weather, which made it almost impossible for hatcheries to obtain eggs that would yield a percentage hatch high enough to permit profitable operations, prevented many from using more of their hatching capacity. The demand for chicks, especially in some of the broiler producing areas, exceeds the supply. Most hatcheries in the broiler areas are booked solid until the first of next year.

The main hatching season just closing will be considered one of the most successful the hatchery industry has ever experienced. It appears almost certain that the industry during the year will produce for the first time over a billion chicks.

A general expansion in the production of chicks for broilers began in the early fall of 1940. The broilers produced from these chicks brought good prices and at the beginning of 1941 activity in the broiler areas was at the highest levels in the history of commercial broiler production. It has been estimated that there have been at least 30 per cent more broilers produced so far this year than during the same time last year, and that the production of commercial broilers this year will exceed 150,000,000 birds.

When the Department announced early in April a program for increasing egg laying flocks, an enormous demand for chicks was created.

Eggs Set by Commercial Hatcheries

Geographic Divisions	July 1938	July 1939	July 1940	July 1941	% chg. from July 1940	Jan.-July Inc. 1940	Jan.-July Inc. 1941	% chg. from 1940
			Thousands					
New England	2,666	4,288	3,299	4,289	+ 30	54,509	68,946	+26
Middle Atlantic	1,579	2,102	1,999	3,218	+ 61	100,529	111,472	+11
South Atlantic	3,144	4,191	4,346	6,867	+ 58	83,370	111,250	+33
E. N. Central	7,684	8,720	12,252	15,438	+ 26	358,130	424,479	+19
W. N. Central	1,618	2,369	1,811	2,083	+ 15	357,459	462,806	+29
South Central	1,203	1,103	971	1,282	+ 32	104,682	137,765	+32
Mountain	192	248	136	109	− 20	22,823	27,476	+20
Pacific	2,616	2,596	2,351	3,315	+ 41	57,534	71,480	+24
U. S.	20,702	25,617	27,165	36,601	+ 35	1,135,578	1,415,674	+25

Hatcheries during May and June did all they could to take care of the local business with their own facilities and by buying chicks from outside sources. Approximately 100,000,000 more chicks were produced by hatcheries during May and June than during these same months last year.

Compared with last year, all regions of the country have shown substantial increases in the output of baby chicks. The smallest increase, 14 per cent, was reported for the Middle Atlantic States, while the largest increase, 34 per cent, was reported for South Atlantic States. A return from about 137,000 reporters from all over the United States indicates that about 786,759,000 chickens will be raised on farms this year. In addition to these, probably about 200,000,000 are being raised in town flocks and in commercial broiler areas, making a total of about a billion chickens being raised this year. Late hatchings may increase this figure.

Increased output this year not only represents an increase in the number of chicks bought by producers, but also a continuation of the shift from home hatchings to commercial hatchings. June reports covering 137,000 flocks show 77 per cent of the chicks coming from hatcheries this year against 73 per cent last year, 70 per cent in 1939, and 58 per cent in 1938.

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	July 1938	July 1939	July 1940	July 1941	% chg. from July 1940	Jan.-July Inc. 1940	Jan.-July Inc. 1941	% chg. from 1940
			Thousands					
New England	1,958	2,709	3,342	4,010	+ 20	37,793	50,444	+33
Middle Atlantic	1,249	1,224	1,274	1,784	+ 40	64,746	73,857	+14
South Atlantic	2,527	2,611	3,681	5,264	+ 43	60,304	80,849	+34
E. N. Central	7,121	7,217	8,884	10,483	+ 18	224,468	271,796	+21
W. N. Central	1,736	1,987	2,045	3,517	+ 72	240,833	300,522	+25
South Central	806	847	464	636	+ 37	73,810	96,149	+30
Mountain	141	172	100	250	+150	14,675	18,278	+25
Pacific	1,534	1,730	1,628	2,442	+ 50	39,563	49,360	+25
U. S.	17,072	18,497	21,418	28,386	+ 33	756,192	941,255	+24

Chicks—Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Aug. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Aug. 1, 1940	July 1940	July 1941	July 1940	July 1941	% change from July 1940
New England	+221	2	2	98	98	+175
Middle Atlantic	+358	9	7	91	93	+188
South Atlantic	+102	1	1	99	99	+300
E. N. Central	+ 84	12	8	88	92	+ 89
W. N. Central	+710	32	42	68	58	+ 71
South Central	+ 50	6	25	94	75	+900
Mountain	+140	16	22	84	78	− 67
Pacific	+ 41	50	38	50	62	+164
U. S.	+140	12	13	88	87	+107

The main hatching season has ended with the producer obtaining the highest price for eggs in July since 1929, and the highest price for live chickens in July since 1930. With only a moderate increase in feed prices compared with the larger increases in egg and chicken prices, the July feed-eggs, and feed-chicken price relationships were more favorable to producers than either a year earlier or the 10-year July average.

Quite a few of the hatcheries now closed have announced their intentions of opening up this fall for the first time since they have been in business. This probably means larger hatchings of chicks this fall and winter for egg laying purposes as well as for broilers. That most of the demand for July hatched chicks came from producers of poultry meat is indicated by the comparison of the relationship between light and heavy breeds hatched in July this year and July last year. Eighty-seven per cent of the total number of chicks hatched this year were of the heavy breeds compared with 88 per cent a year earlier. During the peak hatchery month of April, only 60 per cent of the number belonged to the heavy breeds. Hatcheries report a large increase in advance orders over that on August 1 last year—the increase amounting to 140 per cent.

A summary for the season of the operations of 72 plants reporting each month shows a 2 per cent decrease in the number of turkey poults produced. These plants reported 3,228,000 poults hatched this year compared with 3,295,000 last year.

Turkey Eggs Set and Poults Hatched by Commercial Hatcheries
Jan.-July 1940 and 1941

Geographic section	Number plants rptg. both years	Eggs set			Salable poults hatched		
		1940	1941	% chg.	1940	1941	% chg.
		Thousands			Thousands		
N. Eng. & Mid. Atl.	6	99	93	− 6	33	23	−30
S. Atl.	7	599	660	+11	333	344	+ 3
E. N. Cent.	11	373	465	+25	218	258	+18
W. N. Cent.	20	2,002	1,954	− 2	1,197	1,101	− 8
S. Cent.	9	211	249	+18	163	194	+19
Mountain	7	641	719	+12	262	254	− 3
Pacific	12	2,051	2,143	+ 4	1,089	1,054	− 3
U. S.	72	5,976	6,283	+ 5	3,295	3,228	− 2

Egg Breaking Operations

The production of liquid eggs during July was very large for that month, the U. S. Department of Agriculture reports. Estimated at 38,598,000 pounds, it was 121 per cent larger than in July last year.

Production for the first seven months of this year is estimated at 255,341,000 pounds, compared with 207,212,000 pounds during the same period last year, and considerably surpasses the previous high production of the year 1937, when 225,000,000 pounds was produced.

The frozen egg market was about steady, with no appreciable price changes noted in trade channels, although acceptances by the Federal Surplus Commodities Corporation were at prices approximately ¾ cents per pound lower on mixed eggs at the close of the month.

Reports from egg drying firms indicate that the production of dried eggs in July was over 6 times that of July 1940. Reports from seven firms show a total production of 1,758,407 pounds, compared with 291,168 pounds a year earlier. The firms reporting stocks on August 1 showed that out of a total of 3,253,468 pounds on hand, only 437,718 pounds remained unsold. Egg drying operations are expected to continue at a high rate in view of the large demand for export to Great Britain.

The dried egg market was firm, with continued heavy purchases by the Federal Surplus Commodities Corporation the outstanding feature. Paying prices by this agency advanced approximately 9 cents per pound during the month. August purchases totaled 6,525,000 pounds, bringing the year's total to 13,215,000 pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Liquid Egg Production

		July 1940	July 1941	% change July '40-July '41
		Thousand pounds		
Whole eggs		6,724	22,425	+234
Mixed eggs (plain)		1,677	4,323	+158
Mixed eggs (emulsions, also with sugar, salt, etc.)		926	1,660	+ 79
Egg whites (all descriptions)		4,523	5,558	+ 23
Egg yolks packed	Without salt, sugar, etc.	2,270	3,165	+ 39
	With sugar	943	656	– 30
	With salt	402	811	+102
	All yolk emulsions, including glycerine	——	——	——
Total		17,465	38,598	+121

Dried Egg Production

Commodity	Total Reported July 1941	Same Firm Comparison		
		July 1940	July 1941	% change July '40-July '41
	Pounds		Pounds	
Whole	1,093,960	44,430	1,093,960	+2362
Albumen	169,894	30,387	169,894	+ 459
Yolks	494,553	216,351	494,553	+ 129
Total	1,758,407	291,168	1,758,407	+ 504
Plants reporting	7		7	

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Vol. 3, No. 34 October 15, 1941

Keeping Laying Houses Filled

By MARK WITMER

Dalmatia, Pennsylvania

Transcript of a Talk

KEEPING the laying houses filled to capacity is most important on any poultry farm if you want to operate efficiently. Building costs, upkeep, taxes, and labor (our overhead and operating costs) will be approximately the same, whether our laying houses are full or only half filled. On the other hand, our income and our production will directly depend on whether our laying houses are full or only partly filled.

Today in this national and world emergency, our country calls upon us to produce more eggs and poultry. It is essential that we increase our production of poultry products. How are we to bring about this increased production? First, it certainly is sound business to use the buildings and equipment which we already have to produce this increase. In other words, operate to capacity by keeping our laying houses filled.

Those of us who operated poultry plants in the last war, during the inflation and depression, are probably convinced that now is not the time to build new buildings, buy additional new equipment, or borrow a large amount of money, but, rather, to increase production by using more efficiently the facilities which we already have. We can do

From "How to Keep the Laying Houses Filled to Capacity"
Presented at the Sixth Annual Neppco Exposition, Harrisburg, Pa., Oct. 7, 1941

this by keeping our laying houses filled.

I am going to approach this problem of keeping the laying houses filled from two angles, the breeding angle and the management angle. Both play their part in determining whether our laying houses are filled or partly filled.

Breeding for Livability

1. Breeding for livability is more closely related to filled laying houses than the poultrymen who is not a breeder realizes. Poultry breeders and authorities are agreed that any progress made by trapping, wing-banding, special mating, etc., is accomplished by selection of families of birds instead of the individual bird. Dr. Marble and others have clearly proved by work done that certain families have high mortality records while others, under identical conditions, have low mortality records. Furthermore, both families pass on to their offspring their mortality records. Mortality helps to determine how full our laying houses will be.

I am convinced that if 10 or 15 years ago the poultry breeder would have laid more emphasis on breeding families with low chick and laying house mortality, instead of breeding individuals with egg records of 300 or more, our laying houses would be fuller today.

The breeder who does not realize the seriousness of this mortality problem and breeds and selects families with high mortality will drift out of the picture as a breeder. Today, you and all other poultrymen have the right to ask the breeder from whom you intend to buy stock if he selects families with low mortality in his breeding work, and if he at least selects all males from his flock matings from his lowest mortality families.

From our own records we have learned that livability can definitely be bred into our birds. In one check, we found that only one pullet out of 63 from top families died, while 18 out of 42 from low families had to be entered in our mortality records. Chicks from both families had about the same percentage mortality. From which families would you select males?

Both groups of families came from families with similar mortality records. Anyone can see that it is good business to use males from the first group.

Good Pullets Essential

2. Management. If we want our laying houses to remain as full as possible, we must have not only well-fed pullets, but pullets properly raised. Pullets which have not been overcrowded, overheated, and have been raised in dry houses and good, clean range, properly fed and developed, have certainly been raised under good management.

But, even though the pullets in our laying houses are fed for low mortality and perfectly reared, we cannot keep our laying houses filled throughout the year unless we brood and raise chicks throughout the entire year, using our brooding equipment all the time.

12 Years' Experience

After 12 years of experience with out-of-season brooding, I am more convinced than ever that this practice is the only practical, economical, and efficient method by which we can keep our laying houses filled, and by which we can meet this emergency of producing more poultry and eggs.

When we have a group of pullets in several pens, as time goes on some of the pullets die, we will continuously keep removing birds because they are poor producers, because they are broody, or for various other reasons. The time will eventually come when the pullets will be removed from one pen and put into the other pens of the same age. The pen will be cleaned and filled with these out-of-season pullets.

After birds have been laying for a year or so and drop below 50 per cent production, we handle them and sell all birds out of production, birds which have a tendency to become too fat, etc. Then, again, we will move one or several hens in with other birds the same age, clean up the empty pens, and have more out-of-season pullets. We repeat these operations month after month, and in this way keep our laying houses filled.

Since we are continuously brooding chicks and raising pullets, we always have pullets coming on ready to be housed. We must keep our pens filled and cull weekly.

Last spring we had 2,000 New Hampshire hens about twenty months old. These birds were in seven pens. On March 15, these birds started to go below 50 per cent production. We handled all hens individually and reduced them to 1,290 birds, putting them in four pens. Immediately, this group was brought up to 65 per cent production. On May 1, production again started to slide downward. We handled and culled these four pens, reducing the number from 1,290 to 800 birds, placing them in two pens. Again, we raised production to above 60 per cent. On June 15 we repeated this, placing 400 birds in one pen with the same results. July 15 we again eliminated 200 birds. The last 200 were sold August 1.

Helps Meet Emergency

After following this system for several years, I am convinced that poultrymen in our country, by breeding for low mortality and by raising out-of-season pullets, can keep their laying houses filled and in so doing can meet our country's need by producing more eggs and meat.

The Poultry Industry Needs the Veterinary Practicioner

By J. HOLMES MARTIN
Purdue University

Condensed from a Talk

COORDINATION, integration, and cooperation are words that are being heard a great deal during these times of National defense. However, the words apply no less aptly to the poultry industry and certain situations that exist therein.

We are hearing about certain lags in production, in industry, and in the training of men for tasks connected with defense. At the moment, I am particularly concerned with the three-fold lag in the poultry industry as it is related to the veterinary profession.

Veterinarians Need Training

First, I wish to refer to the lag of you practitioners in learning about the accurate diagnosis and control of poultry diseases, especially the differential diagnosis of certain diseases of virus and nutritional nature. All too frequently, the local hatcheryman, the county agent, or the poultry breeder is better informed in certain fine points of differentiation than the local veterinarian. This is in spite of their lack of fundamental knowledge in pathology, and is frequently associated with the lack of interest, thought, and study on the part of the practitioner.

On the surface, this appears to be a sharp criticism, but we must face the facts if we are to solve the problem at hand. Since we are primarily concerned with the good that can be done by the entire profession for the poultry industry, we had just as well "call a spade a spade."

A second lag that I wish to mention is that of the poultry industry in learning that the veterinary profession has a real service to render the poultryman. He must think of the practitioner not as someone who might cure his sick chickens, but as one who can advise him on problems of disease control, hygiene, and animal health.

Prevent—Don't Cure

I am coming to believe that the Chinese philosophy of the practice of medicine might well be applied to our poultry pathology problem; namely, that the poultryman should pay the practitioner for keeping disease out of his flocks rather than for attempting to cure diseased birds. All diseases run their natural course, and the practitioner can give the poultryman a much better understanding of the course of the disease in his flock. The industry is gaining confidence in the practitioner as he takes more interest in poultry diseases and becomes more capable of meeting the poultryman's needs, and poultrymen are expressing this confidence by employing the practitioner at a fair fee when results are forthcoming.

The third lag which I wish to mention is that of delayed diagnosis. At present, the poultryman does little about the problem of disease in his flock until several weeks have elapsed and a number of birds have died. He does not get excited when the first one becomes sick, nor when he loses the third or fourth hen. Finally, when 10 or 12 have died, he becomes quite concerned.

Don't Delay Diagnosis

What does he then do? Here is a situation where an immediate diagnosis would be of untold value in controlling the spread of the infection. In case the poultryman is unaware of the help the local veterinarian can give him (all too many fall in this group), he consults his local hatcheryman or feed dealer, or, perhaps, the county agricultural agent.

In some cases, he sends a few sick birds to a central laboratory for diagnosis. The shipment of these diseased birds not only may serve to spread the infection to healthy breeding stock in the same express car, but also serves to further delay the answer.

When the diseased specimens arrive at the laboratory, the diagnostician may need several days to diagnose the case. By the time the diagnosis has been completed and the information is available for the poultryman, much mortality has already occurred. In many cases, the resistant birds have recuperated and the more susceptible ones have died.

Diagnostic Laboratories

If poultry diseases are to be adequately controlled, these three lags must be avoided in the future, or at least the resulting damage to the poultry industry, and particularly the flocks, must be greatly lessened.

The state diagnostic laboratories are designed to serve in controlling the last lag which I mentioned, namely that of diagnosis at a central point by a veterinarian who has specialized in poultry pathology. Most of these laboratories, however, much prefer to have the diagnosis performed in the field by the local veterinarian who is familiar with poultry diseases and sees the entire flock and the environmental conditions. In such a case, the veterinarian then consults the specialist

Condensed from a paper presented before the 78th annual meeting of the American Veterinary Medical Association, Indianapolis, Ind., Aug. 11 to 15, 1941.

at the state laboratory only when doubtful or obscure cases occur.

One big advantage of a field autopsy and diagnosis under the eye of a skilled local veterinarian is that the poultryman gets his answer immediately. Also, the diseases are not tracked over the state, and the lapse of time to get the diseased birds to the central laboratory is avoided.

Disease "Detectives"

For diagnostic service and consultation, the poultryman is only glad and willing to pay a fair and commensurate fee. Such a fee need not be large when only two or three hens or a half dozen baby chicks are diagnosed at the veterinarian's office. Incidentally, the contacts made with farmers when diagnosing poultry diseases may develop friendly relationships which lead to calls with other types of livestock.

Indiana poultrymen, as well as poultrymen in other states, have responded to this type of service and are utilizing the services of a local veterinarian to aid them in avoiding the entrance of infection into their flocks. In other words, they are using the veterinarian as the pathological "detective" to tell them quickly if any suspicious cases happen to be carriers or are in the incipient stages of infectious diseases. Such a diagnosis warns the poultryman to be on guard for any particular infectious diseases, or, in other cases, it tells him that the mortality he has been having is not due to a pathogen.

The fact that many general practitioners have built up a poultry practice in recent years indicates how willingly poultrymen and farmers will turn to them with their poultry disease problems. Witness the interest that has been shown here in Indiana, where the Purdue Extension Department employed a practitioner who specializes in poultry practice to hold special extension schools on poultry pathology for practicing veterinarians. These schools have been held in two areas in the state, meeting two nights each week for eight weeks.

School Well Attended

During the 16 lectures, practically all of the important poultry diseases are discussed in detail, and many autopsies are held. In numerous cases, the practitioners bring in diseased specimens from the field. Over 100 practicing veterinarians attended one or the other of these two schools, the average attendance at each of the schools running between 20 and 25 practitioners per meeting. These men would not drive distances from 10 to 60 miles for an evening meeting unless they felt there was a real opportunity in the poultry field. Similar schools have been held in Michigan in past years under the supervision of the extension veterinarian of Michigan

State College. This phase of work has been developed in Illinois and two or three of the New England States.

Service Work

I wish to touch upon another phase of the poultry practice. It might be somewhat inappropriate for me, a layman, to speak of these matters before you practitioners, but I am one of those "fools who rush in where angels fear to tread." I refer to the matter of the rapid testing for pullorum disease and the vaccination for fowl pox by the poultryman himself. These are techniques which are being learned by the commercial poultryman or the hatchery helper. I say this with assurance, for I have seen many laymen do both of these jobs in a most effective manner. We all know that the "proof of the pudding is in the tasting," and there is no doubt but what these programs are actually working in the fields where the service is being done by a well trained layman.

Let Laymen Test

One of the leading professors in a mid-west veterinary college said that he feels that the practitioner has many important contributions to make to the poultry industry in addition to vaccinating for fowl pox and testing for pullorum disease. He feels that in many cases these tasks can be passed along to the layman much in the same way that the physician passes many of his tasks and techniques to the nurse or medical technician.

I feel I am safe in saying that vaccination and rapid testing by the laymen are practices which are here to stay. However, there are, and always will be, many farmers who desire that the veterinarian do their vaccination and blood testing work. Many commercial hatcherymen and poultrymen do their testing and vaccinating because of the sheer cost of handling such large numbers of birds.

There is much to be done by the practitioner in addition to these tasks, and his services are badly needed on other problems, particularly differential diagnosis and advice on hygienic practices. To many poultrymen, rapid testing and vaccination are much in the same category that docking and castrating lambs, castrating pigs, and dehorning cattle are to the livestock farmer. He has learned to carry them on to his own satisfaction and plans to continue them as general farm practices.

Poultrymen Need Veterinarians

Let me stress the fact that the poultryman has certain very definite needs that are not being met at present. These needs are, particularly, prompt, accurate, differential diagnosis, and, secondly, definite, clean-cut, practical recommendations regarding the practice of animal hygiene and sanitation in the hatchery and on the farm. The local veterinarian can do much to help correct this situation by assuring the poultryman that the practitioner, who must of necessity continue to serve those in a limited area, has a service that will lead to greater profits.

Fumigation Materials Becoming Scarce

Both formaldehyde and potassium permanganate are being used in large quantities by the government these days and are becoming increasingly difficult to secure. Those supplies still available are also showing a marked increase in price. Everyone, of course, is asking, "What can we do?"

There are several suggestions which may be of value. If you have been using the permanganate method, you can change to the cheesecloth method, which will save all the permanganate and about 40 per cent of the formaldehyde formerly used. The cheesecloth method is just as effective and is about as convenient.

For best results, have the humidity reading in the incubator increased to 88° or over wet bulb. This will not enable you to save on fumigation materials, but will give maximum protection for the money spent.

When buying formaldehyde, be sure you are getting fresh stock. The commercial formaldehyde as we buy it is in reality formaldehyde gas dissolved in water. The gas separates from the water easily, so stocks should be fresh. Buy formaldehyde in airtight containers and keep them tightly closed at all times. When a large container is opened, immediately transfer the solution to smaller containers and reseal.

For example: Suppose you buy a 5-gallon container. When opened, fill four 1-gallon bottles and break the remaining gallon into smaller units, each of the proper size for one fumigation. When these are used up, open another 1-gallon bottle and transfer to smaller units. Do not draw from a carton or barrel as needed, for the strength will rapidly diminish.

When ordering formaldehyde be sure to specify 37 per cent.

—S. K. Kalber, Smith's Chickagrams, August, 1941.

☛☛ 30,000,000 eggs, an average of 2½ per man a day, will be consumed by 250,000 officers and men of the third army during their six weeks of maneuvers in Louisiana, according to a report in the New York Times.

Combatting Chick Diseases

By ERWIN JUNGHERR
University of Connecticut

Transcript of a Talk

CHICK diseases may be compared to trouble developing in a newly purchased article of merchandise. Rightly or wrongly, the seller is going to take a large part of the blame. Thus, the hatcherymen cannot help but to be interested in the control of chicken diseases. This is the psychological aspect of the picture.

Those of us who studied chick diseases from the medical angle regard the hatcheryman as the key man in the control of chick disease.

The Hatcheryman's Job

As time goes on, the importance of the hatcheryman in disease control will be increasingly realized. No amount of practical or impractical advice offered by poultry pathologists or laws and regulations promulgated by state control officials can control chick diseases unless the hatcheryman translates the fundamental principles of disease control into realities. This is the factual aspect of the picture.

To do this, the hatcheryman is in a strategic position, from which he can—so to speak—look backward upon the parent stock, and forward upon the growing and maturing chicks. Instead of the customary listing of chick diseases, many of which are only too familiar to most hatcherymen, it might be preferable to discuss chick diseases and their relation to the hatchery business from the point of view of breeding and feeding of the parent stock, incubation, and brooding.

Breeding of Parent Stock

Supervision of, or at least contact with, the parent stock which constitutes the source of hatching eggs is highly desirable from the standpoint of the hatcheryman. Aside from the genetic factors which make up the "quality" of the stock, its health status is of direct concern. There is no such blanket designation as "freedom from disease," but specific important diseases command attention. Among them pullorum disease ranks first.

Only the classes in the pullorum disease eradication program which are designated as the "Pullorum Clean" and "Pullorum Passed" in the National Poultry Improvement Plan give reasonable assurance against the introduction of the disease. Lower classes may show satisfactory livability at home, but if

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shipped the mortality increases, which is important in interstate trade. Such lower classes cannot be introduced onto pullorum-clean premises with impunity.

Fowl paralysis and associated diseases are of importance because high incidence of these diseases in the parent stock may be followed by high incidence in the progeny. Although no definite means are available to detect hidden cases, all clinically obvious cases, especially "gray" or "pearly" eye cases (the so-called ocular form of a fowl paralysis), should be eliminated from breeding. The use of two-year-old birds for breeding may be an additional safeguard.

Feeding of Parent Stock

Sound feeding of parent stock is not only important for high fertility and hatchability, but also for providing the chick with the necessary mineral and vitamin reserve during the earliest brooding period, or until the chick itself becomes able to assimilate the essential nutrients. Nutritionists used to believe that hatching eggs deficient in any of the essential factors would fail to hatch. Today we recognize the possibility of the wide variety of degrees of nutritional deficiency which manifest themselves in various forms, from embryonic mortality to just "poor chicks."

For example, rickets, curly toe paralysis, crazy chicks, and hock disease, vitamin D, G, E, and manganese deficiency, respectively, have been seen during the first week of life, at which time they could not possibly have been due to any deficiency of the chick ration.

Incubation

Modern incubation is an intricate application of physical sciences to a biologic requirement. While it is the basis of mass production in the poultry industry, it has multiplied the chances for the spread of certain diseases. The one and only answer to this problem is incubated sanitation, inclusive of both eggs and physical equipment.

Hatching eggs should be collected frequently and kept under proper storage conditions. Low humidity and unfavorable temperature, either too high or too low, will adversly influence the hatchability of the eggs. External cleanliness of the eggs is an important factor in the prevention of so-called "navel ill" or "mushy chick" disease. Dirty eggs, such as may be produced on range during the wet season, frequently give rise to this trouble, and no amount of dipping or scrubbing serves as a corrective. Furthermore, severe variations in temperature make the shell pores more permeable to disease organisms.

Cleanliness of the incubator equipment and rooms is of paramount importance. To start the season with clean equipment is not enough, incubator sanitation is a continuous job on which any letdown is going to make itself felt within a short time.

Incubator Disinfection

Before loading the incubator, most systems of cleaning are effective as long as the elbow grease is extended. Time in itself is an excellent sanitizer, especially if the air is kept hot and dry. At time of hatching, formalinization of the eggs is indispensible in large scale operations. It cannot be expected to make "pullorum clean" out of "pullorum infected" eggs, but it helps to keep down ordinary infections of highly susceptible tissues, such as the navel represents.

Maintaining Hatchability

Maintenance of high hatchability is of obvious importance to hatcherymen. What is less often realized, however, is the fact that high hatchability is a very sensitive indicator of the health of the parent stock; diseases of the parent stock often reflect themselves for a long period after acute outbreaks have subsided.

Abnormal variations in temperature and humidity during incubation may be responsible for improper absorption of the egg yolk in the chicks. A large egg yolk prevents the normal healing and contraction of the navel, which, thus, becomes liable to infection.

Clean boxing and shipping also belongs in the realm of incubation sanitation. In these operations, infectious bronchitis constitutes the greatest hazard. The disease, like other virous diseases, is highly transmissible through both animated and inanimated carriers, but the usual source in hatcheries is apparently recovered "started chicks." Complete depopulation, disinfection, and a pause in the operations are the only means of stamping out the trouble.

In general, the culling process to which newly-hatched chicks are subjected is of much more sanitary importance than is realized. Aside from actual deformed specimens, chicks showing a protruding navel area should not enter the shipping box, because such improper healing of the navel is often associated later with high mortality. Proper culling makes for come backs in the form of return orders, rather than complaints.

Shipping Chicks

A sound hatchery business extends its interest beyond 100 per cent safe delivery. The buyer should be notified as to the probable time of arrival. By prerouting with transportation companies, deliveries can often be made within a minimum time. According to the experiments of U. S. D. A., shipping periods of more than 60 hours delay the initial growth of chicks. To cut down the time between hatching and arrival at the permanent quarters, chicks may be, with proper care, allowed to harden in the shipping boxes in transit. If the volume of business permits, separate compartments or cars should be requested from the transportation companies.

Whether the hatcheryman remains in personal or written contact with the customer, educational efforts should be directed towards securing proper brooding and feeding conditions, and keeping accurate mortality records.

Encourage Record-Keeping

Not every feed service man can be expected to be a specialist on diseases, and, even if that would be the case, the accurate diagnosis of chick diseases is a laboratory procedure. Day-by-day mortality records in themselves, are, however, an excellent mirror of the prevailing disease conditions and management. If, for instance, mortality remains very low for three weeks and then suddenly starts to climb, it is very unlikely that the fault is with the chicks. Thus, accurate mortality records are invaluable in establishing the factual basis of, and in finding a rational settlement for, claims against the hatchery. To obtain an accurate laboratory diagnosis of chick diseases as soon as they appear is likewise an important factor. An efficient service organization should act as the intermediary.

Today, the successful hatcheryman follows the policy of sympathetic cooperation with the diagnostic laboratory, rather than that of mutual distrust of yesteryear.

Epidemic Tremor

This comparatively new disease of chicks is mentioned separately because it constitutes an annoying trouble, which is faced by the northeastern poultry industry. Since its discovery in Massachusetts in 1932, it has been reported from most of the Atlantic states, Colorado, Indiana, and Tennessee. The disease is caused by a specific virus, occurs primarily during the first five weeks of life, is characterized by fine tremor of the head or weakness of the legs, and tends to show up during the late fall and spring.

Fine looking lots of chicks when leaving the hatchery come down with the trouble on the customer's place, very unexpectedly. The natural conclusion of the customer is that there was "something wrong" with the chicks. Scientific studies tend to support the idea that the disease is egg-borne. The actual incidence in the total chick output is low, in the neighborhood of 0.8 per cent, but individual affected lots may suffer a loss up to 60 per cent.

This problem is placed before Neppco for consideration because no adequate control measures are available, and the spread of the disease is limited at the present time. Research studies on epidemic tremor should be carried out and adequately supported where there is still time. A number of New England hatcherymen have cooperated in establishing the New England Epidemic Tremor Research Association, Inc., of which Mr. Edward Walford, Wallingford, Conn., is secretary and treasurer. Funds were provided to carry the research project up until Oct. 1, 1941. The financial efforts of the New England hatcherymen should be continued on a wider scale in order to devise control measures against the occurence of this disease which is beginning to damage the proud reputation of the northeastern chick exporting states.

Hatching Eggs by Pacific Clipper

A consignment of 50 eggs from the United States, by the Pacific Clipper, will arrive shortly for a Seven Hills, New South Wales, Australia, poultry farmer.

By hatching them in an incubator, the farmer, A. A. McKenzie, hopes to get 50 White Leghorn chicks.

"These eggs will cost me about a pound ($3.22) each by the time I get them," said Mr. McKenzie recently. "But they will, I hope, introduce new blood into the White Leghorn stock of this country. I believe we have not had any new White Leghorn blood introduced into Australia for 12 years."

Mr. McKenzie added that the eggs would be packed in a special container but would not be artificially warmed during the trip. The eggs were laid at Corvallis, Oregon, by fowls which had each laid more than 1,000 eggs.

They were flown from Oregon to San Francisco and then put on the Clipper.

—Australasian Poultry World, July 1, 1941.

Sulphur Stops Rats

Sulphur has been used with good success to protect corn in cribs from rats and mice, according to Hoard's Dairyman. A little sulphur sprinkled on the outside of feed in a sack is also effective, according to one of its readers. At a time when storing of feed is a defense measure, these pointers are worthy of attention.

—The Jewish Farmer, September, 1941.

The Fowl Leukosis Battle

By C. D. LEE and A. J. G. MAW
Iowa State College

Reprinted from U. S. Egg and Poultry Magazine

A FEW years ago, chickens were dying right and left on farms with a disease called range paralysis, fowl paralysis, and various technical names. At that time we little understood the disease, its cause, or what to do about it. Probably in the last 10 years this disease has caused more losses to the poultry raiser than any other single disease of adult poultry.

In order that we might study the disease, find its cause, the method by which it was transmitted from one bird to another, and what to do to cure or prevent it, we bought an entire flock that was badly infested with the disease. This flock was taken to the Poultry Research Farm of Iowa State College.

Many Forms

We soon discovered that the disease showed up not only as paralysis of the legs, wings, or internal organs, but in various other forms. Some of these other forms affected the eyes (sometimes complete blindness), tumors in various parts of the body, and a sort of anemia infection of the marrow of the bones.

It is obvious that to call this disease range paralysis or fowl paralysis isn't satisfactory, for a bird suffering from the disease may be able to transmit it to other members of the flock and still not be paralyzed. So to work out a nomenclature for the disease as a whole, a group of poultry pathologists met at the Regional Poultry Disease Laboratory at East Lansing, Mich., last summer and adopted the following nomenclature:

1. Lymphomatosis
    - Ocular (eye type)
    - Neural (paralysis)
    - Visceral (tumor infiltrations)
    - Osteopetrotic (enlarged bones)
2. Erythroleukosis
3. Myeloid leukosis

We found that infected material taken from a bird affected with one type of leukosis injected into susceptible birds might produce any of the other types.

Fowl leukosis is an infectious disease caused by a filterable virus.

Strikes at Six Months

The disease is highly infectious, spreading readily within a flock. It usually strikes birds between four and eight months of age and most often around six months. Birds of all breeds are affected, and no recoveries from the disease have been noted, but temporary let-ups do occur.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, October, 1941)

Going back to the flocks which we purchased about 12 years ago for study of the disease; we trapnested the layers to keep track of them. We made some matings the first year, and part of the chicks were inoculated with leukosis virus, while control lots from the same matings were not inoculated.

In the first year of our study, the control chicks which received no virus came down about as badly with leukosis as the birds injected with the virus.

Find Family Resistance

Then we began to notice fewer of the chicks from certain families died; the chicks from certain hens seemed more resistant than others.

With this lead, we continued our breeding to see whether or not careful selection and breeding could conquer the disease. Now, after about 10 years of breeding, we have certain strains or families that are 95 per cent resistant to leukosis, and other strains of which 40 to 100 per cent will die when inoculated with the leukosis virus.

It is our observation that practically all flocks have some leukosis. So we have watched the effort of certain breeders and hatchery operators to control leukosis. The work of these men has supplemented our own efforts.

Culling Essentials for Control

We have come to the conclusion that the breeder or hatchery operator who follows a thorough practice of culling and breeding can control the disease. Here is the schedule he needs to follow.

1. Cull several times a year, removing at each culling all birds that have gray eyes and those that are light in weight or have pale combs. Obviously, any that are paralyzed in the wings or are lame should be removed.

2. Use as many two-year-old hens in breeding flocks as possible, thus speeding up the control program. In using two-year-old birds, care must be taken in control of other diseases, as tuberculosis.

3. The eyes, weight of the birds, and comb color are about the only obvious symptoms of the disease. By continually removing these birds showing infection (these infected birds have had an opportuntiy to pass the disease on to the other members of the flock), one will be saving as breeders the birds that have stood up and showed resistance to the disease. The more frequently the flocks are culled, the better the results will be.

Such careful culling and selection will bring another indirect benefit; it gets rid of the low producers and better chicks will be turned out.

Neural Type of Leukosis

About the various forms in which leukosis appears, we have made the following observations.

Neural is the nerve type. Paralysis in these birds may be general or local. Paralysis of one or both legs, or one or both wings may occur. The paralysis may be slight or so severe that the bird is practically helpless.

When the brain is involved, various symptoms may show, as well as abnormal head movements. Some of these may be a waving motion of the head, throwing the head backwards or the beak downward, lateral movements, and in general a lack of ability to hold the head in a normal position.

May cases show a paralysis of the internal organs. In some cases, the nerve of the neck is affected and the bird has difficulty in breathing. It may breathe through its mouth. The disease may strike suddenly, or it may come on gradually.

Ocular and Visceral Types

In the eye cases, the iris or red portion of the eye frequently shows in the beginning a depigmented circle around the pupil. The circle is gray at first, or may be only a slightly faded color, but gradually extends until the red or bay color is almost completely replaced. The process may start in any part of the iris as a small depigmented spot, or it may start as a generalized depigmented process throughout the iris, characterized as a faded gray appearance.

In many birds, the depigmentation appears to start in several places in the iris at the same time, giving the appearance of a normal bay color interspersed with faded or gray areas.

Often the depigmentation is irregular and has a streaked appearance, mingling the bay color with gray. The color changes may vary from a faded bay to a dark or light gray, bluish gray, or slate gray. In some cases a black-colored tissue appears as a multiple tumorous mass. Generally both eyes are involved, with one appearing more severely affected than the other.

Danger of Blindness

Many cases show involvement of only one eye. In a high percentage of cases regular or irregular constriction of the pupil occurs with impaired vision or even blindness. The condition may spread rapidly or slowly, and in many cases it appears that the disease has become arrested. The birds usually remain in good health unless blindness occurs or unless the eye type cases become complicated with other forms of the disease.

Frequently, we have observed birds with uncomplicated eye cases in the beginning which developed some other type eventually. We have also seen several uncomplicated eye cases that have lived two years without any great impairment of health.

While most of the popular breeds of chickens should have normally a reddish bay colored iris, some do not have. The iris of the Cornish, and some game birds, is normally a yellow or pearl color, and many crosses of this breed may have normally pearl or gray eyes.

Clinical symptoms in cases affected with lymphocytoma tumors and tumor-like infiltrations in various organs vary greatly, dependiny upon the tissues or organs involved. Many cases in good flesh have died suddenly and upon autopsy were found to be suffering from an enormously enlarged liver.

Respiratory difficulty was observed in a few cases which upon autopsy showed an involvement of the lungs by lymphocytomatosis (tumors). The symptoms in general are more obscure than in the other types of the disease.

Erythroleukosis

Many degrees of affection are noted in the erythroid type. The most characteristic symptom is a severe paleness with a definite yellow discoloration of the skin of the face. The tendency in most of these cases is toward "going light."

The course of the disease is also variable, in some cases progressing rapidly and in others slowly. The appetite usually remains normal except in the very acute, generalized cases, and in cases of prostrated birds.

Myeloid Leukosis

The clinical manifestations of myeloid leukosis are widely variable. The onset may be gradual or rapid, and general weakness with diarrhea is quite common. The skin, comb, and wattles may not show any color changes, while some birds show varying degrees of paleness as well as a peculiar pallor. The tendency in these cases is toward a rather rapid emaciation.

In order to seek an answer for this question, we made matings of paralyzed birds but with very little success because of lack of production or fertility. Birds suffering from erythroleukosis or myeloid leukosis rarely produce eggs. In cases of ocular type or eye type, birds may produce normally with a normal degree of fertility. Matings were made of iritis females and iritis males. The birds were hatched and placed in isolated colony houses. During a 12-month period, 65 per cent of these birds died of some form of the fowl paralysis complex. Matings were made of iritis females and normal males and about 50 per cent of these birds died of the complex. Matings of normal females with an iritis male were used and about 16 per cent of the chicks hatched of this mating died of fowl leukosis.

To further this investigation, blood from day-old chicks hatched from a mating of iritis females and males, was injected into one-week-old susceptible stock from our own breeding flocks. These inoculations resulted in a 60 per cent mortality from some form of fowl leukosis during a 12-month period. These experiments were repeated using blood from one-week-old chicks from iritis matings and at weekly intervals for 12 weeks. We found the blood to be infective at about all ages.

A rigid culling program, eliminating all birds with faded gray eyes, light colored comb and wattles, lame or paralyzed birds, and extremely light birds, will eliminate carriers, thus greatly decreasing this disease in the flock.

When the disease becomes prevalent, the above procedures should be followed and the birds surviving kept as a source of resistant breeding stock.

In only extreme cases should a flock be disposed of and new birds brought on the farm, as they will, in most instances, be very susceptible to the disease, whose infective agent is already present on the premises.

The Hatcheryman's Obligation

The hatcheryman has a remarkable opportunity and a distinct obligation with respect to improving the efficiency of farm and commercial flocks. According to the U. S. Department of Agriculture, over 70 per cent of the chickens raised in the United States last year were purchased as chicks from hatcheries. It is apparent, therefore, that if efficiency in the utilization of feed in egg and poultry meat production is to be improved materially, much of the improvement must be accomplished by hatchery operators.

The foundation of practically all improvement work rests with the progressive breeder who conducts his breeding operations on the basis of the progeny test. The breeder must of necessity make a sufficient number of matings each year to enable him to identify superior males and females. The ability to identify males of superior breeding worth is particularly important, not because he transmits any more of the hereditary characteristics to the progeny than does the dam, but because he has on the average about 10 times as many progeny as any dam to which he is mated.

—Morley A. Jull in Feedstuffs, July 19, 1941.

How to Supply Vitamins A and D

By RAYMOND T. PARKHURST

Massachusetts State College

Reprinted from Poultry Tribune

RICKETS, poor growth, poor production, weak egg shells, crooked breastbones, and other results of low vitamin D intake, mean less profits. So do nutritional roup, high mortality, retarded development, decreased number of eggs, and other consequences of vitamin A deficiency. Therefore, every poultryman has some interest in the question of the present supplies and future sources of these two vitamins.

Changing international situations continuously influence the supplies of vitamin A and D supplements for poultry feeds. It was quite apparent a year ago that natural cod liver oil would be practically out of the picture for poultry feeding during 1941.

Oils for Humans

Most of the cod liver oil now coming into the United States originates in Iceland, Newfoundland, and the Maritime Provinces of Canada. These are sources of high quality oils, the supply of which is being "grabbed up" for human consumption. The limited imports of cod liver oil of poultry grade are being used principally in the production of fortified cod liver oils. Most, if not all, of the companies which still list fortified cod liver oil either confine their sales to old customers or ask a premium of 3 or 4 cents per pound over feeding oils also having a potency of 400 chick units of vitamin D and 3000 U. S. P. units of vitamin A per gram.

As long as the World War II continues, and for some time afterwards, there will not be enough cod liver oil to go around. If the trawlers off Newfoundland, Iceland, and our New England coast are taken for mine sweeping, the cod liver oil supplies, even for human consumption, will be still more limited than at present. The only promising factors in the cod liver oil situations are the occupation of Iceland by the United States and the use of the cold flotation method of rendering cod livers. They may favorably affect medicinal oil production.

New Oils Appear

"Vitamin A and D feeding oils" and fortified sardine oils of almost any desired potency of vitamins A and D have come into general use

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Poultry Tribune, October, 1941)

during the past year with the result that there has been no shortage of vitamin A and D oils. With conditions as they are in the Orient, the west coast trawlers might be requisitioned. This would seriously affect fish oil supplies, which are reported to be short now due to a poor season in California. Menhaden fish oil is higher in price this year than a year ago.

"Feeding oils" are blends of oils. Sardine and Menhaden oils are the ones most often used now for carrier oils, although some herring oil from British Columbia is being used, too. To increase the potency of the final products, the high potency oils from the fish of the tuna family have been extensively used. Crude tuna liver oils vary greatly in potency, but often assay 20,000 U. S. P. units of vitamin D per gram. They are purchased on the basis of their potencies in millions of U. S. P. units of vitamin D. As poultrymen are interested in chick units of vitamin D, blended oils containing tuna oils must be tested carefully with chicks before they are ready for use in poultry mashes.

Why Worry?

Why worry? One reason is that close to three-fourths of all the high potency fish livers and oils come from the Orient. Frozen livers were still arriving in June, some in very poor condition. The current fishing season started in June and yet in July there were few arrivals of livers in our ports. The restriction of trade with Japan undoubtedly means trouble for those in the vitamin D field because they may have to depend almost entirely on the domestic sources of vitamin D concentrates. It is to be expected that the price of vitamin D oils will be higher if supplies are not ample.

Domestic Source Developed

The vitamin D situation has been relieved by a substantial increase in the production of "D"-activated animal sterol, a new source of vitamin D, produced by the transformation of certain chemical compounds by ultra-violet light. The sources of the sterols are domestic and are reported to be ample. They have been shown to be entirely satisfactory for poultry and are being extensively used in place of high potency fish liver oils for fortifying carrier oils with vitamin D and in other ways.

In an emergency, when vitamin D oil is not available at all or only at exorbitant rates, the poultryman can do several things to reduce or eliminate vitamin D costs. It may mean more work and less reliability than he has enjoyed in the past few years, but he will get by if good "chicken sense" is used.

Direct sunlight is sometimes a fine source of those rays which are so helpful to poultry. However, it

is not too dependable during the winter months. Open up the windows and let the sunlight in, when consistent with good ventilating practices. Glass substitutes and special window glass may increase the vitamin D supplied to the birds. It cuts out part of the rays of sunlight, but does allow a greater proportion to pass through than ordinary window glass, and therefore may be beneficial.

Sometimes birds can be allowed to run outdoors, but in our eastern multi-story houses, such a practice is hardly feasible. Under many conditions, half the requirements will be met by one or more of these measures and feed men may be asked to supply mashes with one-half the vitamin D content used for birds in confinement.

Sunlamps for Emergency

How about sunlamps? Certainly no discussion would be complete without mentioning them. Sunlamps, due to the vitamin D they produce through irradiation of the animal tissues of the head and the feet of the bird, can be used effectively. There has been a question as to their economy, as compared to fortified feeding oils, especially if vitamin A costs are considered. When and if experiments at Ohio Agricultural Experiment Station and elsewhere show that relatively short exposures at not too frequent intervals will suffice, or bulbs are produced having a longer life, then sunlamps undoubtedly will come into more general use under normal conditions. Normally, the cost of replacing bulbs, the depreciation of equipment, the labor required to operate them, and the fact that vitamin A must be supplied extra, usually has made their use uneconomic. In an emergency, this probably would not be true and their use would be justified.

Vitamin A Scarcity Looms

Vitamin A is so important in human nutrition and supplies are so limited right now that there is every indication that it will be increasingly more expensive. High potency fish liver oils, especially shark liver oils, are used extensively to make "fortified oils." Sardine and Menhaden fish oils require more units of the vitamin than cod liver oil because they are naturally lower in vitamin A content. If the supply of shark livers from the Orient is not available and the season off the California Coast continues poor, the cost of vitamin A will be high. Soupin shark oil of 100,000 U. S. P. vitamin A potency per gram is now at a premium.

Natural Feeds Provide A

Poultrymen can get all or a large proportion of the vitamin A requirements of their birds from other sources than fish oils, and may have to do so. Alfalfa products, dried cereal grains, yellow corn, and free range are a few of the possibilities. Under normal conditions, using good quality feeds, as little as 30 per cent of yellow corn and 2.5 per cent of dehydrated alfalfa leaf meal in an all mash starter will supply all the vitamin A requirements of chickens and the minimum requirements of laying hens, without fish oil supplements. For productive requirements and normal conditions, 40 per cent of yellow corn meal and 5 per cent of dehydrated alfalfa leaf meal is suggested.

Alfalfa leaf meal, yellow corn meal, and fish oils all lose vitamin A potency during storage. Because of this, more vitamin A is needed in feeds to be stored more than four weeks in summer and eight weeks in winter. Under such conditions, and in instances of disease outbreaks, it is desirable to supplement the usual ration. There are several ways of doing this effectively. Fortified oils of 3,000 vitamin A units per gram potency may be mixed in the dry mash at the rate of one tablespoonful per 3 pounds, skim milk or water added to make the feed of a crumbly consistency, and this amount of mixture can be fed daily per 100 layers. Some feeders are adding dried cereal grasses to their rations. Ladino clover and grass silage are excellent sources of carotene and may be fed up to 4 pounds per 100 hens daily. Birds on free range, of course, have an excellent and ample source of vitamin A.

Unfavorable effects on health, growth, production, and reproduction in the poultry flock can be avoided by known practical methods if emergency conditions, or the desire for excessive profits, should make the use of fish oil sources of vitamins A and D in poultry mashes impossible or too costly.

No Monotony in Poultry Keeping

There are very few practices in this poultry business that are universal. New people marvel at and get disgusted with this lack of uniformity in methods and ideas. Usually in a group of 10 poultrymen, there are four or five different methods of feeding, and many different ideas about brooding. General management practices vary as much or more, and each poultryman has his idea about replacement and culling.

Certainly, this poultry business cannot be accused of being monotonous when there are so many different methods of management, all of them more or less successful!

—Hogsett's Chicken Chatter, August, 8, 1941.

How to Increase Egg Production

Condensed from Canadian Poultry Review

Editor's Note: The following material, compiled by a committee headed by F. N. Marcellus, is for use in Canada's drive for increased egg production, in their "Food For Britain" program.

1. **Keep every hen** and pullet for 1941-42 that is fit to produce eggs. If you cannot house them all, sell the surplus to someone who can. Keep a full henhouse, but do not overcrowd. Allow approximately 4 square feet of floor space per bird.

2. **"A dozen eggs more** from every hen," should be the slogan of every producer for 1941-42.

3. **Clean houses** properly and make them ready for the layers well before the birds are to be put in.

4. **House layers comfortably** as possible. It will help increase production.

5. **Feed carefully** on a well balanced ration. Don't guess. Be sure the essential vitamins, minerals, proteins, and other requirements are present.

6. **Be careful in feeding** new grain. Some new grains are toxic, especially wheat. Twenty-five per cent of new grain should be the limit used until one is sure there is no toxic reaction on the birds, after which the proportion of new grain to old may be gradually increased.

7. **Pullets housed** early in the season may be let out in the yard after a few days' confinement. This may help prevent feather pulling and cannibalism.

8. **Provide mash hoppers** at the rate of 24 feet of double sided hopper per 100 birds. Ample drinking equipment is important, preferably the open-pan or open-trough type. This should be protected, however, so that the birds cannot get into the water with their feet. A 4-foot steel hog trough or two open drinking pans 16 inches in diameter would be ample for 100 birds.

9. **Keep fresh water** before the birds at all times and see that mash hoppers, grit, shell, and bone meal containers are kept free of litter or dirt, so the birds can feed freely.

10. **Keep reels** sufficiently high enough from the sides of the hoppers to permit the birds feeding freely without catching their combs on the reel.

11. **Provide plenty of nests,** preferably of the semi-dark type. One open-type nest for every five birds in the flock, kept well supplied with clean nesting material, will reduce breakage of eggs and thus help insure a clean, quality product.

12. **Keep birds in pens** until mid forenoon, during which time they have free access to the mash or

From "16 Rules for Increased Egg Production"
(Canadian Poultry Review, September, 1941)

grain in the hoppers. This will prevent scavenging for food in the early part of the day and insure a better quality product. If the yards are in a muddy condition, it is best to keep the birds confined until the afternoon, when practically all laying is completed.

13. **Maintain a healthy** flock. A healthy hen is usually a producing hen. Birds suffering from disease, even a slight cold, cease to become an asset and may become a definite liability.

14. **Ventilate houses** properly, keeping them free from drafts, and dry. Clean as often as necessary. Maintain the house in a clean sanitary condition.

15. **Collect eggs** several times daily to avoid breakage and soiling of the shells. Place in containers that will permit free air circulation in order to cool eggs quickly. Eggs collected soon after laying, cooled quickly, and stored in a cool place will insure a better grade, hence a better price.

The Hatcheryman Ten Years From Now

Who knows—I do not—why the hatcheryman should be different ten years hence than he is now? The good hatcheryman supplies what the public demands at a reasonable and fair price. He knows that the kind and quality of the poultry of the country depends on him.

Our freedom of thought and action must be considered when applying to the hatchery—yet at the same time the hatcheryman's influence is so far-reaching that he must conform to group management.

As a keen business man, knowing the full meaning of the word "volume," he will be fully alert to the trend of the times, or he may be one wheel of the co-operative or group. If the hatcheryman as an individual is to serve, he must give a satisfactory chick that is profitable to the owner. If we become group minded and lose some of our selfishness, hatcheryman will be one of the community endeavors.

—W. R. Graham at Neppco Exposition, Oct. 10, 1941.

POULTRY profits cannot be expected unless the flock is large enough to warrant the necessary time and attention. Cost studies have indicated that labor cost per bird and per dozen eggs is twice as high in flocks of 100 to 150 as in flocks of 300 to 400 birds. Egg production has also been found to be greater in the larger flocks.

—American Poultry Journal, July-August, 1941.

POULTRY RESEARCH

All-Night Lights for Growing Turkeys

All-night lights do not significantly increase the growth or feed consumption of turkey poults over that of poults receiving only normal daylight, and lights are beneficial only in preventing crowding and piling, so their used is not justified unless the cost is very low, conclude T. T. Milby and R. B. Thompson, after a 4-year study at the Oklahoma Agricultural and Mechanical College, relates Poultry Science (Vol. 20, No. 4).

Clutch Length and Illumination

Use of artificial illumination to give 14 hours of light with 12 hours of darkness lengthened clutches by (1) assuring a lighted period of sufficient length to maintain pituitary and, consequently, ovarian activity shortly after ovulation and (2) permitting the birds adequate rest periods, thus delaying the onset of refractoriness, in tests conducted at the University of Maryland by T. C. Byerly and O. K. Moore, according to a report in Poultry Science (Vol. 20, No. 5).

Chalaza Formation

The theory that the chalazae are formed from a suspension of mucin fibers by the rotation of the egg during the process of ovulation is supported by investigations made by H. M. Scott and Wai-Lan Huang at the Kansas Agricultural Experiment Station, according to a report in Poultry Science (Vol. 20, No. 5).

Insect Transmits Fowl Paralysis

The "blue bug" (A. persicus) has been found to transmit fowl paralysis, report J. C. Brown and J. C. Cross in the Journal of the American Veterinary Medical Association for July, 1941.

Not only was the infection carried from infected hens to non-infected ones by "blue bugs" or "fowl ticks," but a suspension of their bodies, when injected into young birds, resulted in paralysis in 21 to 29 days.

Sulfathiazole for Coryza

Sulphathiazole, in concentrations of 1, 0.5, and 0.25 grams to 30 grams of mash, proved effective in the prevention of clinical symptoms of coryza, following inoculation with virulent cultures, report J. P. Delaplane and H. O. Stuart of the Rhode Island Agricultural Experiment Station in the Journal of the American Veterinary Medical Association for July, 1941.

The material seemed to be of value in hastening recovery of infected birds, but was effective against laboratory infection only during the time the drug was being administered. The organisms, therefore, are not all destroyed following inoculation, but remain sufficiently retarded to prevent clinical symptoms.

The blood from birds receiving sulfathiazole was found to have a marked retarding effect on the growth of cultures of the coryza-causative organism (Hemophilus gallinarium).

Effects of Various Dosages of Eimeria Acervulina

The severity of infection produced in susceptible birds was in proportion to the number of sporulated oocysts of the coccidia Eimeria Acervulina administered in a single dosage in tests carried on by E. M. Dickinson at the Oregon Agricultural Experiment Station, according to a report in Poultry Science (Vol. 20, No. 5).

E. acervulina infection in susceptible pullets caused a loss in body weight and egg production, but was not considered a primary cause of mortality. Daily administration of 500,000 sporulated oocysts of the species did not produce a permanent or "chronic" detrimental effect.

Protection or resistance against a heavy dosage of the sporulated oocysts was consistently demonstrated, although at no time was it sufficiently solid to prevent a mild infection from occurring. The protection produced from mild dosages of approximately 5,000 sporulated oocysts for 10 days appeared to be as solid as the protection from daily dosages of many times that amount.

Green Feed for Layers

Italian rye grass, Japanese tendergreen mustard, and oats as grazing crops for laying birds did not influence hatchability or egg size, but did cut down mortality when compared to dry lot grazing, in tests carried on at Mississippi State College by G. R. Sipe and H. D. Polk, according to their report in Poultry Science (Vol. 20, No. 5).

Pasture reduced feed requirements for egg production from 5.68 to 10.12 per cent. Of the crops studied, rye grass provided the greatest number of grazing days, with oats second, and mustard third. Oats and rye grass were superior to mustard for winter grazing, but mustard was superior to the others for summer grazing. The least feed was required with oats for grazing, with mustard second, and rye grass third.

Yolk color of eggs produced by birds on grazing crops was darker than that of birds on the dry lot, with the darkest yolks produced by birds on oats, next by birds on rye grass, and third by birds on mustard.

Blood Cells in Chick Bone Marrow

The rapid increase in number of red and white blood cells in chick bone marrow from the time of hatching until the fifth day thereafter was greatly out of proportion to the increase in body weight, in tests carried on by B. R. Burmester, J. M. Severens, and E. Roberts at the University of Illinois, according to the report in Poultry Science (Vol. 20, No. 5).

The concentration of neutrophils in the circulation and the total number in the marrow of the four long bones reached their maxima at about the second day after hatching, but the proportion of neutrophils to total white cells decreased markedly throughout the whole period. Concentration of lymphocytes and the proportion of lymphocytes to total white cells in the circulation increased greatly during the period from six days before hatching until seven days after hatching.

Development of Turkey Embryos

The turkey embryo practically doubles its weight each successive three-day period from 7 to 22 days of incubation, report L. A. Wilhelm and E. I. Robertson of the Washington Agricultural Experiment Station in Poultry Science (Vol. 20, No. 5). Only slight increases in body weight occur until the thirteenth day, however.

Average length and width of the embryos increase fairly uniformly throughout the entire incubation period and appear to be a more accurate indication of development than weight, particularly during the first part of the period.

Value of Egg Yolk Powder

When 100 grams of egg yolk powder was fed to 10 patients, eight with chronic rheumatoid arthritis and two with chronic nephritis without edema, for from 4 to 16 weeks, it resulted in striking gains in weight. Nine of the ten persons gained, varying from 5 to 16 pounds each. It was concluded by the investigator, Alfred Steiner, that egg yolk powder is an economical agent for increasing the nutrition of the body, and is, in addition, a rich source of the vitamins A and D and the water-soluble fraction of the vitamin B complex, relates Veterinary Medicine, October, 1941.

Restricted Feeding for Breeding Turkeys

A period of restricted feeding followed by a period of full feeding enabled breeding turkeys to gain weight during the first three weeks of the egg-laying season, but did not help to diminish losses in weight thereafter, in tests carried on by H. M. Scott and L. F. Payne at the Kansas Agricultural Experiment Station, according to a report in Poultry Science (Vol. 20, No. 5).

It was learned that the weight of the female turkey diminishes by about 18 per cent during the laying season.

When the feed intake was restricted to 78 per cent of that of a control group, neither the number of eggs laid nor hatchability was influenced, but hatching power was significantly reduced when feed was restricted to 61 per cent.

Young Birds Gain Most Efficiently

Few people except those who are engaged in the production of meat birds are familiar with the wide variation of costs in poultry production that prevails in different ages of birds, and how sharply this cost increases as the bird increases in size. The results of a study at the University of Maryland will be of interest to producers of broilers and fryers, particularly.

Three – pound Plymouth Rock broilers ate only 10.5 pounds of feed to reach that weight. When the same birds were carried on to make 6.5 pound roasters, they ate a total of 36.4 pounds of feed. In other words, the first 3 pounds took 3½ pounds of feed for each pound of meat, but the last 3½ pounds required so much more that the average cost per pound of producing the larger bird was 5.61 pounds of feed per pound of gain.

Experiments with ducks indicate that while a 5 pound duck ate 16.5 pounds of feed or 3.3 pounds of feed for a pound of gain, a 7 pound duck ate 42 pounds of feed or 6 pounds of feed for each pound of weight increase.

Geese and turkeys, likewise, showed large increases in cost per pound as the size of the animals increased. For the production of a 6 pound goose, it took 18 pounds of feed, or 3 pounds per pound of gain, but to make the same goose weigh 14 pounds it required 84 pounds of feed, or 6 pounds of feed for each pound of gain. When turkeys were used in the trials, it took 18 pounds of feed to make a 6 pound turkey, but to make the same turkey weigh 15 pounds, it took 63 pounds of feed or 4.2 pounds of feed for each pound of weight increase.

—California Cultivator, Sept. 6, 1941.

Annual Report of Poultry Coordinators

By **PAUL B. ZUMBRO**
Bureau of Animal Industry

Condensed from a Report

THE number of States cooperating in the National Poultry Improvement Plan is the same as last year – 44. Of the four remaining States, only two, Montana and Pennsylvania, have organized state poultry improvement programs. In each of these states interest has been expressed during the past year in cooperating in the National Poultry Improvement Plan, although such cooperative arrangements has not yet been effected.

The number of cooperators in the plan and chicks produced continued to expand during the year. The number of cooperating hatcheries was 2,465 this year as compared to 2,192 last year—an increase of 12½ per cent. The egg capacity of the cooperating hatcheries increased 30 per cent, from 90,578,000 last year to 117,915,752 this year. The broad influence of the plan on the poultry industry can be seen when we realize that from 30 to 40 per cent of all the chicks produced in hatcheries in the United States were produced in accordance with its provisions.

The number of hatching egg supply flocks increased from 50,559 last year to 59,136 this year; the number of birds in these flocks increased from 10,714,238 last year to 12,010,766 this year; and the number of breeding birds officially tested for pullorum disease increased from 8,990,869 last year to 10,541,695 this year.

In Record of Performance participation, the change was as shown in Table 1.

A significant development during the past year is the attraction to the program of hatcheries with greater egg capacity. This, together with the expansion of hatcheries already in the program, has resulted in a considerable increase in the average egg capacity of the cooperating hatcheries. During 1941, the egg capacity averaged 47,836, as compared with 41,322 in 1940, and only 37,276 in 1939. The listed egg capacity of the individual cooperating hatcheries varies from 200 to 1,972,000, indicating that the provisions of the plan are adaptable to either small or large scale operations.

While the figures on extent of participation, when viewed as a whole, are quite encouraging, there are some disturbing facts as well.

Presented at National Poultry Improvement Plan Conference
Chicago, Ill., July 17, 1941

The first is the turnover in R.O.P. hatcheries, and hatching-egg supply flocks. The number of U.S.R.O.P. flocks during the current year is 445, as compared to 429 last year — an increase of 16. This looks like progress, but when we examine the participation reports more critically we find that 70 flocks are being trapnested under R.O.P. supervision for the first time this year, and that 62 flocks that were in the program last year are no longer being trapnested under R.O.P. supervision.

Continuous Effort Necessary

Poultry improvement efforts, to be most effective, should be continuous rather than spasmodic. Before a new flock is started in R.O.P. work, the R.O.P. supervisor should discuss the matter very thoroughly with the prospective breeder in order to make sure that he understands all of the detailed trapnesting, pedigree, and record work involved.

The turnover in hatchery participation is also a deterrent factor in accomplishing the objectives of the plan. In one state, 22 hatcheries are cooperating in the program this year, as compared to 21 last year, but 10 of the hatcheries cooperating this year are new participants. This is not always the case, however, as in another State the number of cooperating hatcheries this year is 115, as compared to 69 last year, and, with the exception of four hatcheries, all that were in the program last year are again cooperating.

It must be obvious to anyone associated with this work that hatcheries, to make the greatest progress in poultry improvement, must continue in the program year after year.

Hatcherymen well know the loss from turn-over in hatching-egg supply flocks. It ordinarily takes several years' time to develop, through selection, testing, and the introduction of pedigreed males, a good hatching-egg supply flock. If a hatcheryman can keep the same supply flocks year after year, he can well afford to spend a lot of time and effort in building up these flocks to a higher level of quality, but if 25, 30, or 40 per cent of the flocks are new each year, progress is hindered tremendously.

Analysis of R.O.P. Records

A little more than a year ago, a procedure was developed in the Department for the analysis of the U. S. R. O. P. Pullet Reports and Breeding Pen Records by the punch card method. The procedure is similar to that followed in Canada since about 1938.

R. O. P. Participation

	1939-40	1940-41	% Change
U. S. R. O. P. flock owners	335	335	0
U. S. R. O. P. flocks	429	445	+3.73
Birds entered in trap-nest flocks	144,447	154,969	+7.28
U. S. R. O. P. breeding pens	2,429	2,749	+13.17
Females in U. S. R. O. P. breeding pens	32,949	38,957	+18.23

The records are recorded on punch cards, and the cards are then mechanically sorted, so that all the daughters of each dam and sire are grouped together. Then the data are relisted according to families. From this listing it is easy to determine the sires and dams that qualified for U. S. Register of Merit, which, together with giving official recognition to the results of progeny test breeding and furnishing the necessary data for publication of a directory of U. S. R. O. M. sires and dams, is the primary purpose of the analysis.

Select on Family Basis

One of the greatest values resulting from the analysis of R. O. P. records by this method is that of stimulating interest in the selection of breeding birds on the basis of family records rather than their individual production records.

For the 1938-39 trapnest record year, the records of 156 breeders and 185 flocks constituting 57,924 birds were analyzed. Sixty-five of the 156 breeders whose records were analyzed had in their flocks sires or dams that qualified in the U. S. Register of Merit breeding stage of the plan. The R.O.M. directory for 1938-39 lists 155 U.S.R.O.M. sires and 809 U. S. R. O. M. dams. This directory includes family averages, as recommended by the committee that was appointed at the 1939 conference on the development of the U. S. Register of Merit breeding stage.

Closer Work Among States

From the observations of the coordinators, we are of the opinion that more effective poultry improvement programs can be developed through closer cooperation among the official state agencies and state inspectors in neighboring states. This is being effected to some extent but not to the fullest. For example, at the training school in Colorado last year, arrangements were made for two of the staff members of the training school in Utah to appear on the program and assist in the training of agents.

Along the same line, we believe it would be advantageous for official state inspectors to work occasionally with the state inspectors in border states, particularly in the inspection of hatcheries and flocks that are near the state line. This permits an exchange of ideas which should be beneficial in the development of a more efficient inspection and supervisory service.

In visiting a group of states in a region, we frequently come across excellent ideas, as well as solutions to problems, in one state that have not been thought of in a neighboring state. We are of the opinion that it would be advisable occasionally for the poultry coordinators to meet with the contact representatives and official state inspectors in a group of four or five adjoining or near-by states for about a two-day informal conference. There is no one state that has a corner on all the good ideas and in our opinion anything that can be done toward developing a more uniform program within an area will be of benefit to all the industry members concerned.

New Committee Suggested

At the suggestion of those in attendance at the 1939 conference, in Cleveland, Ohio, a committee was appointed to study the pullorum-control phase of the plan and to develop a set of uniform recommendations for the consideration of official state agencies and industry members. The work of the committee has been of value in stimulating thought on the soundness of the present pullorum control provisions.

It has been suggested to the poultry coordinators that a similar committee should be appointed to study the provisions of the plan that relate to breeding improvement. The purpose of such a committee would be to develop the soundest possible organized breeding improvement program, and, insofar as practicable, to recommend changes that would take into consideration the most advanced methods of improvement that are known.

Short-Interval Trapnesting

One idea that should be considered is that of short-interval trapnesting. With the present shortage of poultry farm labor, thought should be given to trapnesting either 5 or 6 days a week rather than 7, since available data indicate that 5-day-a-week trapnesting is practically as accurate a method of determining individual production records as daily trapnesting. Even 1 or 2-day-a-week trapnesting is quite accurate in determining family production, although it is not sufficiently accurate to determine individual production.

Use of N.P.I.P. Record Forms

The use of the standardized record forms that were developed and approved by the national committee on record forms and which are distributed by the Department without cost to the official State agencies has expanded a great deal during the year; 194,475 record forms were distributed this year as compared to 148,118 last year.

In addition to record forms, a large number of publications relating to the work of the National Poultry Improvement Plan were distributed by the Department during the past year, including aproximately 12,000 copies of Miscellaneous Publication No. 300; 4,500 copies of Miscellaneous Publication No. 317; and 3,500 copies of Miscellaneous Publication No. 349.

Variable Requirements

One of the complicating factors in the National Poultry Improvement plan is the difference in requirements among the states. While it is permissible for an official state agency to have requirements higher than those in the plan, in many instances this has the effect of a "trade barrier" and nullifies one of the principal objectives of the plan.

For example, in one of the states where only the tube agglutination method of testing is recognized, the cooperating breeders and hatcherymen are not permitted to introduce hatching eggs, chicks, or breeding stock from flocks tested by the rapid, whole-blood method. This restriction makes it necessary for breeders in that state to limit their purchase of new stock to states where the tube agglutination method of testing is used. Since the provisions of the plan are determined by vote of representatives from all of the cooperating states, should we not in all fairness permit a free interchange of stock among those who are participating in the same phase of the plan? In our opinion, a U. S. Pullorum-Tested hatchery in one state should be permitted to buy hatching eggs and chicks from a U. S. Pullorum-Tested hatchery or flock in any other state. Otherwise the purpose of the plan is being defeated.

While we know that in general the provisions of the plan are based upon sound, established principles of breeding improvement and pullorum-disease control and, therefore, that the widespread adoption of these principles is certain to result in improvement in the economic qualities of baby chicks, every effort should be made to obtain statistical data on the improvement of poultry actually accomplished as a result of this program. In a few of the states, data are available showing the mortality among chicks produced by the cooperating hatcheries.

In the state of Alabama the inspector gets a list of chick purchases from the cooperating hatchery, and visits the farms to see how the chicks are doing. If the mortality is higher than normal, the inspector then revisits the hatchery in order to try to locate the source of trouble.

Study Mortality

The extension poultrymen in some of the states are attempting to determine, through demonstration farm records, the egg production and mortality of pullets from U. S. Certified chicks as compared with those of U. S. Approved chicks. We have too little actual data to demonstrate the value of the work of the plan. We are inclined to take it for granted when supporting data could often be used to advantage. If data of this kind are available in your state, we suggest that it be sent to all of the other official state agencies and to the Department for general use. We would like to encourage the collecting of more information on the value of the program during the coming year.

General Administrative Problems

In our opinion, one of the most important developments that should come through the operation of the plan is that of effecting a close cooperative working relationship among industry members and all the agencies within a state concerned with the improvement of poultry. Unfortunately, in some of the states the pullorum-control phase of the plan and the breeding phase are not properly coordinated. The board of directors of the official state agency should include representatives of the livestock sanitary authorities, as well as of the state college of agriculture, and, in our opinion, the majority of the board should consist of participating industry members. In most of the states, only hatcherymen and R.O.P. breeders are selected as industry members of the board.

We believe that a broader viewpoint can be established by having flock owners, chick purchasers, and selecting and testing agents represented on the board of directors. Also if a turkey-improvement program is in effect or contemplated, the turkey breeders and raisers should be represented on the board.

Outlook for the Future

With an effort being made to increase the production of poultry and eggs for defense needs, the need for organized poultry improvement programs is amplified. If the increase in production is a result of improvements in efficiency, the industry will be on a sounder basis when the need for more poultry and eggs has been met. Through the facilities of the organization of the National Poultry Improvement Plan, we can contribute to the accomplishment of an increase in poultry production through improving the efficiency of poultry. Throughout this conference, we should keep in mind the present needs and develop a program for assisting in this matter to the fullest extent possible. Anything that can be done to make the work of the plan more efficient will contribute to the services required during the present emergency.

In the plan, we have trained and experienced personnel that are accustomed to working together in the improvement of poultry, through putting into practice the known scientific methods of increasing efficiency through breeding and pullorum-disease control. This personnel should be in a better position to accomplish the desired improvement than any new organization.

Excellent progress has been made during the past six years toward achieving the objectives of the plan. This progress has resulted from the cooperative efforts of a large number of people, including progressive industry members, state agencies, and the Federal Government. However, much remains to be done. We have faith that equal or greater progress will be made during the next six years. To make such progress will necessitate making full use of the knowledge that we have all gained through the operation of the plan to date, keeping on the lookout for new ideas, and realizing that there is always room for improvement.

Carotene Harmed by Meat Scrap

Chickens may suffer from a deficiency of vitamin A even though the feed may contain sufficient quantities of carotene, because certain types of meat products, dried milk products, and dried fish destroy this pro-vitamin in dry contact, G. S. Fraps and A. R. Kemmerer, of the Texas Experiment Station, declared at the recent annual convention of the American Chemical Society at St. Louis, Mo.

When meat scraps are autoclaved, their carotene-destroying power is removed, presumably by destruction of the enzyme responsible for the attack on the carotene, the experts pointed out. After two weeks of feeding of rat groups, one with meat scraps of high and the other of low carotene-destroying power, the average vitamin A content of the livers of the two groups as determined by the spectroscope was 18.7 and 26.4 parts per million, respectively.

—Feedstuffs, Aug. 23, 1941.

Paint Makes Buildings Last

Paint is an essential item on a poultry plant, and there are few buildings that suffer sooner from neglect. Of course, many poultry buildings are cheaply constructed, but at that, the per capita cost per hen housed is high enough. Whether cheaply or expensively constructed, however, the useful life of a poultry house depends entirely upon the care and attention that is given it.

I am of the opinion that as long as you can keep a tight, leak-proof roof over it, and a weather-resisting coat of paint on its side walls, there is no reason why a laying house should not last almost indefinitely, provided, of course, that you have a good foundation under it and are careful to see that the rats don't get too far ahead of you.

—Edmund H. Reeman, New Jersey Farm and Garden, September, 1941.

Diary of a Poultryman

By PERCY S. WHITE

Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

Oct. 1—A letter today from Mark Weser, manager of the Butler Egg Auction at Butler, Pa. reminds me that I am to talk at their annual meeting on the tenth. Now I just wonder what I ought to say. Those folks have forgotten more than I ever knew about this chicken business. There is coming a time when it will be necessary for me to get some new experiences to tell. Maybe I ought to tell about that time I had $5.02 in the bank with several thousand birds to feed; when the eggs from each hen had to raise five chicks.

Oct. 2 — I put a hen in the incinerator. It was like going to the cash register and ringing up "no sale." That bird was absolutely worthless, to herself, to me, or to anyone. Her ashes, not scattered on the sands of time, but on the truck patch, are of more value than the living bird. Fertilizer is valuable, but rather expensive on a chicken farm.

Oct. 3—For some reason or other, I am having an epidemic of blowouts. There were two yesterday and three today, and I wonder how many there will be tomorrow. If it keeps up at this rate forever, I won't be in the chicken business that long. Some days I take a handful of stock to the incinerator, the dead and the living dead. I am humane enough to break the necks of the living dead before incineration, but I doubt seriously if it makes very much difference to the birds.

Oct. 4 — Kid White and I will leave next Wednesday afternoon for Butler. I have written for a room reservation at the Hotel Nixon. I have also written to Omar and Mabel Craig, down New Brighton way, inviting them to come up and have supper with us at the hotel. It has been well nigh on to 20 years since we have been together. Kid White and I are counting on this being a real vacation, a whole day and a half long. That is a long time to be away from home, especially for Kid White.

Oct. 5 — I am wondering what is going to happen next in the line of an epidemic. Probably pox, colds, or what have you. Right now, the epidemic is in the form of burned out electric lamps. One or two have been burning out for the past few mornings. They are somewhat like the "One Hoss Shay;" they all burn out at the same time. Yesterday I brought home 2 dozen, fresh stock.

Oct. 7 — The car has been shampooed. Tomorrow afternoon Donnie and I will wax it in preparation for the trip to Butler, Pa. I don't want Mark Weser and his gang to see me drive in with a lousy looking car. It might not be the very latest model, but if it is clean and shining, it ought to help my prestige.

Oct. 9—Hotel Nixon, Butler, Pa. This certainly has been a real treat for Kid White and me. Neighbor Cal Ebert came along with us for the trip. Promptly at 6:30, Omar and Mabel Craig arrived, looking exactly as they did 20 years ago. We were in the dining room until 8:30, which surely meant that we enjoyed ourselves. Then we went up to the room and visited until 12 o'clock.

All the cares, responsibilities and burdens of life seemed to drop away from us and we were back once again in the days of our youth. But the remembrance of those days was mellowed with life . . . births, deaths and financial obligations. We talked, laughed, told stories, and visited.

Oct. 11—We arrived at the ranch at 11 o'clock last night. Yesterday is one to be remembered. I had phoned Mark Weser as soon as we reached Butler to let him know I was on tap. About 10 o'clock Cal and I went down to the auction building and later went over to the church where the meeting was to be held.

Kid White, in the meantime, had gone shopping. I am familiar with the fact that the grass is greener on the other side of the fence. But she was there in time for dinner, and such a dinner. I never before saw such a dinner. The ladies of the church seemed to have outdone themselves. They topped the meal off with ice cream and cake, six kinds of cake, passed in bushel baskets. Hospitality . . . it flowed like water. I will never forget my trip to Butler, my new friends or the old.

Oct. 14—I have had two nice trips this fall, to Jackson's Mill, W. Va., and Butler, Pa. The pleasant memory of these will help break this gosh-awful daily routine. In order to loosen up the old brain, I tried counting the eggs backwards, from 100 down. Got so confused I had to recount into another basket.

Oct. 16 — I have ordered the pox vaccine — pigeon strain again this year. I usually wait until a short time before I want to use it, so that I will get fresh stock. Maybe it wouldn't be necessary to vaccinate this year, but I am afraid to risk it. I could save money by not vaccinating, but, after all, it is cheap insurance.

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What I really need is full coverage on everything, fire, hail, windstorm, pox, coxy, worms, colds, varmints, and death. An insurance policy against incineration, that is what I need.

Oct. 18 — My return load from town was growing mash. I think this will be about the last time I will have to get growing mash this year. At present the pullets are eating several times as much grain as mash. I think that this is a good policy on their part, and at the same time it is easier on the check book.

Oct. 19 — These old hens are beginning to perk up on production. But what I can't understand is why they lay eggs all over the floor instead of in the nests. I have to keep an eye peeled as to where I am going to put my big feet, or I am liable to step on an egg.

Oct. 21—The east and west houses are ready for pullets. All that is to be done now is to put mash in the feeders, and start moving in the birds. But I think I will be better off to let them stay on the range a few days longer, for this weather is just too nice to be cooped up in a house. In common every day language, I think they are better off out doors and that, in the long run, I will be ahead. They look as if they will start laying after they are housed like pop corn popping in a hot skillet. These warm days and cool nights are developing them in as good shape as if they were inside. Then laying mash, lights and warm water to drink should mean eggs . . . money.

Oct. 23 — Another epidemic of burnt out electric lamps is taking place. They don't last forever, but it does seem queer that several go at the same time. Replacements are always on hand.

I chased a duck-like hen all over the second floor this afternoon and never did catch her. The rest of the birds were becoming so panicky that it seemed best to let her alone. But I will get her some time when she is not expecting it. If all other methods fail, I'll put some salt on her tail.

Oct. 24 — I thought that I was through selling market hens, but it seems as if I wasn't. Occasional ones have been picked up during the past few days and held in the battery. There was a coop of them, and today was the sale day. The inspector rejected one, said I could either bring it home to burn or the auction would pay someone to haul it away. I try to be a good sport, so I brought it home.

Oct. 26—The decks are all cleared to start housing the pullets Monday morning. Everything is ready so we can start as soon as the regular work is done. There will be four houses to fill with pullets, the east, west, north and the east end of the block house. The pullet crop looks promising, but I don't count eggs any more before I gather them. I have determined by bitter experience that there are many slips between the chick and a full egg basket in the winter.

Oct. 28—We only housed a test run of pullets; 215. This number used two bottles of pox vaccine, and cleared the round houses of all the birds that roosted in them at night. The rest of the round house pullets are roosting in the trees. So from now on whenever we catch a bird, she is ours, and there will be no rehandling.

The top grade pullets are going in the east and west houses, the second grade in the block house; while the less mature are being housed in the north. Of course, the battery is catching a few, too. These are the market birds. Although I never make a specialty of producing such stock, there always seems to be a few of them sticking around the ranch.

Oct. 30 — This has been a busy day. We housed "three bottles" of pullets, a bottle vaccinating about 110 birds. Kid White does the vaccinating between her regular work in the house. Our dinner was really a light lunch, as we worked right up to dinner time. I don't like to hold the birds too long in the coops, for they are liable to start beating one another over the head. A nice pullet got beat up yesterday, her head swelling about half as big again as normal. It will take her around a month to get over it and, in the meantime, she will eat but not lay. Accidents happen in spite of all precautions, but I don't like to court trouble. One never knows what one is storing up for during one's courting days.

Oct. 31 — Kid White says she wants to dress some of the little ratty pullets, but we decided we would make a test sale of a coop on today's sale. If they sell all right, she won't dress very many but, on the other hand, if they don't, she will dress them for the cold storage locker plant.

This locker plant is really a fine thing. The cull birds are dressed as they crop out, put in storage, and Gordon Watson retails them to his patrons. Some patrons put ten or twelve in their locker at a time, and this is the kind of business we like to have. Mrs. Earl Snyder, for instance, has bought probably 3 dozen birds during the last two months. Each bird is dressed ready to cook, wrapped in parchment paper, frozen, and placed in her locker. All she has to do is to take it home and cook it.

VIEWS OF THE EDITORS

Getting More Eggs

Secretary Wickard asks for a 10 per cent increase in eggs for 1942 over the high 1941 production, an increase that would bring the total output to 4 billion dozens in 1942. This is the kick-off for the big campaign of food-production-for-defense. Practically every farmer is to be contacted personally and asked what he can do as his part in defense. American farmers will do all they can, but it should not be overlooked that they are laboring with the difficulty of finding good help. High wages have drained the rural districts of a large amount of desirable help, and in Central New York it was necessary to go as far as Florida to get bean pickers to bring into the fields.

If we go into January with about 12 per cent more females in the laying houses, the poultry industry can come pretty close to meeting the call for increased numbers of eggs in 1942, but there is no way to show any increase in eggs, except from chickens that are now already grown, until late in the year 1942.

Secretary Wickard wants the chickens grown in 1942 to total 80 million more than the 680 million grown in 1941. Milk, pigs, calves, and lambs are also wanted in larger numbers. The emphasis is on food, rather than feed. The increases are designed to make the output the biggest in the history of American agriculture. The request for chickens in 1942 is a request for heavier hatchery output, which may mean 12 million dozens more eggs to produce 100 million more chicks, to yield the estimated 80 million more chickens to be raised next year.

Prices for these chicks will probably be a little higher than in the spring of 1941. Eggs will cost the hatcheries more, shipping boxes will cost more, repairs and replacement of equipment parts will cost more. Prices will keep pretty well in line with these costs, as income taxes will be very high on everything that looks like real profits.

This enlarged output of eggs will be required for domestic and export uses. England will require a large amount of dried eggs. A new government plan calls for an increase in the production of dried eggs to 100 million pounds a year. This will necessitate the erection of 35 to 40 new plants at an average cost of about $75,000 each. Such plant facilities would call for about 300 million additional dozens of eggs per year. That is about what the Wickard 1942 plan proposes, — a step-up from 3,676,000,000 dozens to 4,000,000,000.

—Frank L. Platt, American Poultry Journal, October, 1941.

Parity Poultry Prices

Of the hundred and one problems which confront the poultryman, he asks and writes about one question more often than all the others. In one way or another, the question involves, "How long can we expect such favorable egg prices, meat prices, and egg feed ratios?"

To a man, every one is concerned with what may happen when the government removes the floor prices and the industry is forced to adjust itself to whatever the new conditions may be. It is a perfectly natural business question.

No poultryman needs to be reminded that increased poultry products in the "Foods for Defense" program is strictly an emergency program. No one needs to be reminded of Secretary Wickard's appeal to American poultrymen last spring to produce more eggs. With the defense demands for increased production, let us not forget that it was also urgently requested that this increase be attained with present equipment and better management practices, rather than through the medium of new building expansions.

There is the human element factor to consider in this request for expansion in the defense program. As long as prices are rather flattering, there will be some physical plant expansion. The wider and wilder such expansion occurs in the face of appeals to the contrary, the greater will be the problem of adjustment when it becomes necessary. There are many angles, ifs, ands, and so forths to this economic problem.

The best and, so far as we know, only answer to this key question as to the future of the poultry business when the defense need has passed lies in the meaning of the Steagall bill, which was passed by Congress.

This bill directs the Secretary of Agriculture, if and when he encourages expansion of any agricultural commodity, to use funds available through the Commodity Credit Corporation to support a price of not less than 85 per cent of parity, or a price comparable to a parity level for other commodities.

The increased production asked for is not to be allowed to depress to an unreasonably low level the domestic price of the output—eggs for example. The use of money to pay the 85 per cent parity price is provided for to avoid depressed prices resulting domestically from requested expansion of the product.

The procedure and protection is much the same as has been followed with such crops as wheat for many years as provided for in another bill.

The answer to this often-asked question is for the time still further answered in the Steagall bill. This act is not to be discontinued without allowing producers reasonable time to adjust production. That is the status of the poultryman at the present time in his contribution of food for defense. Readjustment is a problem of tomorrow, with all the definiteness of time an unknown factor. Just where private enterprise will begin or end, government planning shall begin or end, or where standardization may interfere with producer's originality are all factors which must yet be worked out in an American way.

—H. E. Cosby, The Eggsaminer, September, 1941.

Used Egg Cases Will Help

Due to priorities and other demands for national defense, it is becoming increasingly difficult for manufacturers of egg cartons and egg case fillers to get sufficient raw material for their normal civilian trade requirements. The same condition prevails in the fibre board egg case field. These conditions must be accepted with grace by the egg and poultry trades as part of their contribution to national defense and the government's avowed purpose of full aid in the destruction of Hitlerism. Coincidentally, the wheels of the food marketing machinery must be kept turning between producer and consumer.

At a recent conference of trade press editors and officers in the Quartermaster's Corps in the Second U. S. Army District, L. V. Burton, editor of Food Industries, made the suggestion that Army purchasing agencies consider the feasibility of salvaging packages in which are transported the many food items required by the Army. This suggestion appears both timely and well taken. His recommendation might even have gone a step further and embraced the acceptance by the Army and others of foods in serviceable used shipping containers, provided, of course, that the packages be in such condition adequately to protect the contents. Wider trade acceptance without penalties of second-hand wooden and fibre egg cases would doubtless help materially in easing the burdens of the manufacturers and aiding the defense effort.

This may seem like trying to undo the year of work and effort toward better packaging, but, with the exacting demands that are being made upon all lines of industry, it would be too much to expect the egg and poultry business to roll along without their proportionate share of burdens, hardships, and inconveniences. There is, however, consolation in the fact that by a little extra work an egg case can be made to carry its perishable contents three or four times instead of once, or twice at the most, as is the case today in most instances.

—American Egg and Poultry Review, September, 1941.

Emergency Management

Days of National Emergency are days of personal emergency. Our accustomed daily routine has been interrupted. Most of us are doing things differently than we did a year ago—working longer hours, or looking after more stock, or perhaps trying to get along with inexperienced help in place of trained men who have been called for military duty.

To stockmen and poultry raisers who are faced with a labor problem, we offer this thought. It is much easier and quicker to teach a new man to follow a cut-and-dried plan than to teach him the "Art" of feeding.

Many successful dairymen, hog men, cattlemen and poultrymen still adhere to the principle of the old adage: "The eye of the master fatteneth his cattle." And rightly so, as long as they, personally, can do all the feeding, or have time for careful supervision of every act of their helpers. The feeder who is naturally gifted to judge condition and gauge appetite may get more out of the same stock and the same feed than the man who "follows the book."

But inexperienced helpers can't judge by the signs. They lack the "eye of the master." Unless they have either constant advice or a specific plan to guide them, they may cause serious harm while earnestly striving to do what is right.

In past years, we have seen men who scarcely knew which end of a hen lays the eggs take a written plan of poultry feeding and management and achieve results that would do credit to a veteran. Perhaps it was beginner's luck, but more likely it was because of the fact that a good written plan embodies all the essential "do's and don'ts," and so holds the flock on a course that is safe.

So for the duration of our National Emergency, let us urge livestock and poultry owners to adopt a definite plan of feeding and management. It will help to hold your herds or flocks more safely on the straight and narrow, whether they're in the hands of experienced help or novices. It will help to avoid abrupt changes of methods if you have to change men. It will help to save you, the owner, a lot of headaches. And we believe, in the long run, it will help to increase production.

—Checkerboard News, August, 1941.

❦ ACCORDING to Julian Huxley, curator of the London Zoo, most species of birds have grown used to the air raids on England. The reactions of parrots have varied. One is said to have learned to imitate the sirens, another fell into a deep mood of melancholy, and a third was so upset that it lost its power of speech for weeks.

—Veterinary Medicine, August, 1941.

Better Care of Eggs in Retail Stores

By CARL FRISCHKNECHT
Utah State Agricultural College

Reprinted from Monthly Report of Utah Poultry Record Keeping Project

ONE way to increase the food supply for home and national defense is to reduce the losses which occur between the time different foods are produced and the time they are consumed. This is especially true of perishable products such as eggs, which should be consumed as soon as possible after they are produced, unless stored under favorable conditions.

Deterioration in Marketing

Because the egg shell and its membranes are extremely thin, porous, and easily broken, eggs should be handled with care and marketed in containers that are attractive and that prevent breakage. Losses in moisture, quality, and value also occur in eggs that are not held in a cool, moist, atmosphere from the time they are produced until they are ready to be used.

This means that special facilities must be provided in all of the channels of trade if eggs are to possess the highest quality and the maximum food value when they are broken for use. In other words, it doesn't do much good to encourage poultrymen to produce more eggs unless proper facilities are provided to keep them from losing moisture and spoiling while they are being marketed. Research studies indicate that these losses are reduced to a minimum when eggs are held in an atmosphere with a temperature of 40° to 55° F. and a relative humidity of less than 85 per cent.

Utah is one of several states in which eggs must be graded before they are marketed. However, there is little value of having grading laws when practically no attempt is being made to maintain high egg quality or to prevent the grade of eggs from changing while they are moving through the different channels of trade.

Grocers Are Offenders

Almost every grocery store sells eggs but little or no effort is put forth to merchandize them properly. Most of the eggs in these stores have been graded, but the consumer seldom gets the quality he pays for. This is because the eggs he or she purchases, whether loose or in cartons, are usually stacked on shelves or tables in the store where the atmosphere is warm and dry. Eggs deteriorate in quality and soon become stale under conditions of this kind.

Very often, the new supply of eggs is added to the top of the pile. This makes it difficult for the consumer to determine the age or the length of time the eggs have been held under conditions that are unfavorable.

Is it any wonder that some people refrain from eating eggs? The purchase and breaking of one bad egg is often enough to cause a person, or an entire family, to substitute some other food product in the diet for a considerable period of time. It is also one reason why local egg routes and direct sales—producer to consumer—are increasing rapidly.

Consumers Need Information

Eggs are one of the most complete and best health-promoting foods a person can eat, but their continued use depends primarily upon maintaining the freshness and original quality that is present at the time the egg is laid. The producer has received more instructions concerning the proper care and handling of eggs than anyone else, but the time has come to pass this information on to retailers and consumers, both of whom are guilty of handling eggs improperly.

Attractive cabinets have been installed in most of the retail stores to keep the milk sweet and the butter and cheese from spoiling. There is no legitimate reason why better facilities should not be provided for eggs, which are also perishable.

Nothing, of course, will be done about this until sufficient sentiment is created to bring about a change. For this reason, it would be well for you to observe the way your eggs are being handled the next time you visit your local grocery store. Something will be done if enough of us complain about the unsatisfactory manner in which the eggs we buy and sell are being handled. A cent or more a dozen would soon pay for modern equipment that would maintain better quality, reduce losses, and increase the per capita consumption of eggs in this country.

FROM Moultrie, Ga., comes the news that John Gregory, a nearby farmer, found one of his chickens stuck in the mud pond, cackling excitedly. When he tried to pull the hen out he found that she was held fast. He pried around with a pole until the hen was freed, with a snapping turtle tightly clamped to the chicken's leg by his powerful jaws. Gregory is said to have had both chicken and turtle soup.
—American Egg and Poultry Review, September, 1941.

EVERY YEAR a 1 ton birthday cake is cut by a Los Angeles department store, the Milwaukee Journal reports. Some 3,600 eggs are required in making it.

Protein Levels for Chickens

By C. W. SIEVERT
Chicago, Illinois

Condensed from a Talk

USING protein mixtures of good quality, the minimum protein levels for good growth have been satisfactorily determined for chickens. The criteria considered in arriving at satisfactory protein levels are gain in weight, rate of gain, feed and protein consumption, cost to produce a unit of gain, influence on sexual maturity, feathering, and general health.

When chicks are given free choice of feed, they select a ration containing 18 to 19 per cent protein. A large number of experiments have indicated that the early rate of growth of chicks is increased when fed up to about 20 per cent protein. Low protein feeding causes them to weigh less and have greater mortality. Some experiments indicate that protein levels over 20 per cent are satisfactory or even desirable. High protein levels have been shown to produce no injury, since the spleen, liver, heart, and kidneys were not affected even when high levels were fed up to 38 weeks of age.

There are reports of feather picking, cannibalism, and pick-outs in connection with low protein feeds. Slow feather development has also been correlated with the lower protein levels.

Australian trials have shown that the heavy breeds made more satisfactory gains when the higher protein feeds were used up to nine weeks, as compared with six weeks for Leghorns.

In experimental coccidiosis, chickens on high protein feeds maintained their weight better than on low protein diets.

Cornell has shown that for early rapid growth the ration should contain approximately 20 per cent protein for the first month. This can be reduced 2 per cent for each succeeding month, but should never go much below 15 per cent.

There are some variations from these levels suggested by various investigators, some being higher, while others are lower. The Cornell recommendations are considered quite sound for fast growing birds.

Protein and Age at First Egg

It is doubtful whether the time that pullets begin to lay can be regulated appreciably unless the protein level is below the minimum. In that case, growth is delayed. Delaying growth in this manner is a very questionable practice.

Heuser also says, "There are many advantages of securing early rapid growth (which is the normal condition), such as maintained vitality and body reserve, earlier broiler marketing, and sufficient weight of pullets at time of laying to induce good production and egg size. Titus and Jull point out that in the case of lots receiving skimmilk (and growing rapidly early), the point of inflection of the growth curve occurred earlier than in the case of the lots not receiving it, which suggested to them that the more nearly a 'perfect' condition of nutrition is approached, the more nearly will the whole of the growth curve approach the curve of diminishing increment, which they believe to most nearly fit the growth data of chickens developing normally."

Protein Levels for Hens

Hens in production require a continuous source of nutrients and that includes sufficient protein of good quality. Insufficient protein results in less egg production, lower body weight, and smaller egg size.

Much work has been done by many experiment stations using various protein levels. Levels below 14 per cent were practcially always found to be too low. Under practical conditions, it is well to provide a diet containing at least 15 per cent protein. This means 15 per cent protein for the total ration.

For the production of hatching eggs, low protein rations give low hatchability. Generally speaking, the use of vegetable protein concentrates has not been as satisfactory as those from animal sources.

It has been shown that hens can tolerate rations containing as much as 30 per cent protein when the necessary vitamin and other nutrients are supplied. The real practical reason for making poultry feeds not so high in protein is because protein is comparatively expensive as an energy-forming feed and consequently most feeds are so formulated as to contain the minimum quantities.

Meat and Fish Needed

If poor quality proteins are used, then a somewhat larger percentage will be necessary. For example, if a diet is made entirely of grain sources of protein, then quite a bit more protein would have to be provided. When the grains and grain products usually used in poultry feeds are supplemented with meat, fish, and milk, then the above-noted percentages are fully adequate. Soybean oil meal may be used in place of part of the meat or fish. Under some conditions, it may be possible to use relatively large amounts of soybean oil meal, and even displace meat and fish entirely, but under practically all production feeding conditions, soybean oil meal should not be used quite so extensively.

From "The Role of Protein Supplements in Poultry Diets," a talk presented at the seventh annual summer meeting of the Maryland State Poultry Council, Salisbury, Md., July 31, 1941

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Eggs per 100 layers			Eggs per flock		
	Jan. 1	Aug. 1	Sept. 1	Aug. 1	Sept. 1	Aggregate Jan.-Sept.	Aug. 1	Sept. 1	Aggregate Jan.-Sept.
North Atl.									
1930-39 (Av.)	97.5	75.2	73.6	44.5	39.2	406	33.7	28.9	345
1940	97.2	71.6	74.1	46.9	41.9	428	33.7	31.1	357
1941	95.4	74.2	73.5	47.7	42.3	443	35.5	31.1	371
E. N. Cent.									
1930-39 (Av.)	108.8	79.0	77.5	39.6	35.6	372	31.5	27.8	349
1940	110.8	79.4	79.1	42.7	37.4	390	34.0	29.8	370
1941	110.3	80.8	79.3	44.1	38.6	410	35.9	30.9	387
W. N. Cent.									
1930-39 (Av.)	117.6	84.0	82.1	35.4	32.0	341	29.9	26.2	345
1940	118.6	84.9	82.5	39.6	36.9	365	33.8	30.4	378
1941	116.1	86.6	84.7	41.9	37.8	388	36.4	32.2	397
South Atl.									
1930-39 (Av.)	58.6	45.0	45.8	36.7	31.3	352	16.3	14.1	178
1940	59.9	45.6	47.4	40.4	35.3	371	18.1	16.3	194
1941	59.4	44.9	46.7	40.1	35.8	387	17.6	16.5	195
South Cent.									
1930-39 (Av.)	64.4	48.4	49.1	33.0	27.8	337	16.0	13.7	185
1940	65.8	47.7	49.3	36.6	31.4	345	17.3	15.4	192
1941	62.7	48.5	50.6	38.6	33.3	378	18.7	16.9	206
Western									
1930-39 (Av.)	73.2	59.0	58.5	43.8	39.0	402	26.1	22.9	260
1940	73.7	56.4	57.5	44.4	39.3	415	25.1	22.8	264
1941	71.6	57.2	57.4	44.6	40.7	418	25.6	23.1	263
United States									
1930-39 (Av.)	84.0	62.4	62.0	37.7	33.3	360	23.3	20.2	259
1940	85.1	62.0	62.6	41.0	36.6	378	25.1	22.5	274
1941	83.2	63.0	63.3	42.4	37.7	399	26.4	23.5	286

Egg production in August, equivalent to 8,472,000 cases, was the largest for the month since 1929. It was 4 per cent larger than August production last year and 11 per cent above the 10-year (1930-39) average. Most of this increase was due to a record high rate of lay. The aggregate production for the 8 months of this year was the largest since 1930. It was 3 per cent larger than the aggregate for the same months in 1940, 7 per cent above the 10-year average, and was only 2 per cent smaller than in 1930, when the number of layers was considerably larger.

The rate of production per layer during August reached a record high of 12.25 eggs, compared with 11.85 eggs last year and 11.16 eggs, the 10-year average. In every month this year except in March, April, and May, a record high seasonal rate of lay has been reached. The aggregate production per layer in the past 8 months was the largest of record and exceeded the

layings of last year by 5 per cent and the previous high in 1938 by 1 per cent. This high rate of lay still continued on September 1 when sample farm flocks showed a rate 3 per cent higher than last year.

Farm flocks during August averaged 248,909,000 layers. This number exceeded last year and the 10-year average by 1 per cent. During the next few months a large number of pullets will enter laying flocks and if producers hold over two or three more than usual out of every 100 of their productive hens and pullets, as is anticipated, the number of layers on January 1 will reach the desired increase of 10 per cent over numbers at the beginning of this year.

The number of pullets not yet of laying age on September 1 was 9 per cent larger than a year ago and 2 per cent larger than on September 1, 1939, while the preliminary estimate of chickens raised this year is estimated to be 14 per cent greater than in 1940. With increasing numbers, the percentage increase of pullets retained for layers is generally less than the percentage increase of chickens raised, because culling is ordinarily more drastic with a large than a small crop.

The increase in the number of pullets not of laying age on September 1 was most pronounced (19 per cent) in the South Central States and least (1 per cent) in the South Atlantic States.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Egg production in August was the largest reported for the month since 1929, and exceeded last year by 4 per cent. Most of the increase is attributed to a record high rate of lay. Receipts of eggs at Central western primary markets have shown the usual tendency to fall off as the season has advanced, but for the past three months, and particularly in September, the changes, compared with a year earlier, have been very sharp increases. In September, these increases have been more than 100 per cent.

Average weekly receipts per plant have been greater during the entire season than in former years, as indicated by comparisons covering corresponding weeks of this and previous years. For example, average receipts per plant during the week of September 15 to 20 were 537 cases, while averages per plant for the corresponding week in the previous five years were 208, 172, 169, 227 and 136. Furthermore, average receipts the past few weeks have not varied much in quantity, though in most previous years receipts dropped sharply each week during this period.

Despite increased production and heavier country marketings, a terminal market receipts are lighter than in 1940. This difference between trends of receipts at country primary markets and terminal markets may be attributed to the heavy buying program of the government, as a result of which large quantities of shell eggs are moving from country markets direct to drying plants. That dried egg production has increased greatly is evidenced by the August output this year, which was 12 times greater than in 1940. Liquid egg production in the same period was more than double that of a year earlier. August receipts at four markets, New York, Chicago, Philadelphia and Boston, were about 7 per cent lighter than in August of last year, and in September about 3 per cent less than a year ago. Supplementing receipts of domestic eggs at New York have been several shipments from South American countries, approximating 82,300 cases the past month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	August 1941	August 1940	% change	Jan. to Aug., Inc. 1941	Jan. to Aug., Inc. 1940	% change
New England	26,422	22,012	+20.03	348,453	317,171	+ 9.86
Middle Atlantic	111,918	132,277	–15.39	1,631,351	1,584,337	+ 2.97
South Atlantic	10,105	13,506	–25.18	175,662	212,721	–17.42
East North Central	177,051	142,517	+24.23	2,491,425	2,446,442	+ 1.84
West North Central	419,227	500,515	–16.24	5,650,617	6,334,925	–10.80
South Central	1,911	1,069	+78.77	73,271	74,495	– 1.64
Mountain	21,023	27,968	–24.83	288,950	280,808	+ 2.90
Pacific	37,375	23,900	+56.38	112,035	311,750	–64.06
Miscellaneous	179	325	–44.92	2,843	3,915	–27.38
TOTAL	805,211	864,089	– 6.81	10,774,607	11,566,564	– 6.85

Receipts of Dressed Poultry (pounds) at 4 Markets*

New England	1,813,608	2,033,688	–10.82	7,247,459	9,647,993	–24.88
Middle Atlantic	8,090,405	8,298,810	– 2.51	41,352,382	34,340,387	+20.42
South Atlantic	4,649,384	3,165,017	+46.90	27,229,861	18,126,137	+50.22
East North Central	2,470,256	2,650,424	– 6.80	20,924,220	23,099,683	– 9.42
West North Central	13,949,065	14,373,867	– 2.96	78,238,325	93,998,936	–16.77
South Central	1,358,730	1,250,920	+ 8.62	13,700,861	12,326,490	+11.15
Mountain	96,219	291,580	–67.00	3,198,302	3,443,999	– 7.13
Pacific	292,477	292,877	– 0.14	8,511,608	10,089,334	–15.64
Miscellaneous	0	0	–	0	128,680	–
TOTAL	32,720,144	32,357,183	+ 1.12	200,403,018	205,201,639	– 2.34

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	% Chg.	Pounds of Poultry (000 omitted) 1941	1940	% Chg.	Pounds of Young Stock (000 omitted) 1941	1940	% Chg.	Pounds of Fowl (000 omitted) 1941	1940	% Chg.
Sept. 6	113,761	52,276	+117.62	4,425	4,908	– 9.83	3,002	2,936	+ 2.24	1,341	1,867	–28.18
Sept. 13	114,040	51,508	+121.40	4,882	5,288	– 7.68	3,378	3,253	+ 3.84	1,430	1,943	–26.38
Sept. 20	112,677	44,175	+155.07	5,675	5,374	+ 5.61	3,911	3,340	+17.09	1,681	1,947	–13.66
Sept. 27	99,114	36,292	+173.10	7,478	5,639	+32.62	5,435	3,505	+55.08	1,965	2,054	– 4.34

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	Cases of Eggs 1941	Cases of Eggs 1940	% Change from Previous Week	% Change from Last Year
Sept. 6	62	50,029	48,899	–0.52	+2.31
Sept. 13	62	50,345	49,933	+1.04	+0.83
Sept. 20	61	49,871	49,844	–0.94	+0.05
Sept. 27	62	50,106	49,019	+0.04	+2.22

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
Sept. 6	28	29,431	+2.02	+23.78
Sept. 13	27	29,976	+7.79	+24.34
Sept. 20	26	33,578	+2.55	+22.78
Sept. 27	29	32,908	+0.54	+20.26

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration		10-Yr. Avg.	Price of Fresh Graded Firsts (Dollars)		Cost of Ration per 100 lbs. (Dollars)	
	1941	1940	1931-40	1941	1940	1941	1940
Sept. 6	5.32	6.14	5.99	.287	.195	1.528	1.198
Sept. 13	5.44	6.25	5.77	.288	.193	1.569	1.208
Sept. 20	5.32	5.87	5.74	.290	.201	1.542	1.183
Sept. 27	5.22	6.02	5.60	.292	.200	1.528	1.204

—Compiled from U. S. D. A. market reports.

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration			Avg. Egg Price per Doz. (Dollars)			Avg. Feed Cost per 100 lbs. (Dollars)		
	1941	1940	1939	1941	1940	1939	1941	1940	1939
September 4	6.6	6.7	6.7	.357	.278	.285	2.37	1.85	1.91
September 11	6.7	6.4	6.4	.36	.289	.308	2.42	1.86	1.98
September 18	6.9	6.6	6.9	.357	.281	.29	2.45	1.86	2.00
September 25	7.0	7.0	7.9	.344	.267	.248	2.39	1.87	1.96

—Compiled by N. Y. State Department of Agriculture and Markets.

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration					
	1941	1940	1939	1938	1937	1936
August	6.18	6.94	6.47	5.63	7.76	6.88
Jan.-August	7.20	9.08	7.50	7.55	9.54	7.44
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

Heavy egg production compared with a year ago, greatly increased marketings at country packing plants, lighter terminal market receipts, a slowing down of the out-of-storage movement, extensive buying of egg products by the Government—these are features of the current egg market situation. The net influence on egg prices has been further advances, part of which may be regarded as seasonal in nature.

The changing egg situation reflects to a large extent the announced purpose of the government to support egg prices in order that supplies may be increased to take care of domestic needs for national defense. A goal of 4 billion dozens of eggs has been established for 1942 production, an increase of close to 10 per cent over estimated 1941 production. In this connection, the Secretary of Agriculture has announced that the department will support prices for eggs until December 31, 1942, at not less than 85 per cent of parity.

Wholesale prices of eggs at the close of September represent advances in all major markets. Chicago Firsts average a cent higher than a month ago, New York Firsts 1½ cents higher, top grades of nearby eggs at New York 2 cents higher, and top grades of Pacific Coast eggs at New York 4 cents higher. On the Pacific Coast, San Francisco Extras are 3 cents higher than at the end of August, and other Coast markets have advanced, although to a lesser degree. Compared with September 1940, the foregoing increases are 7 to 9 cents per dozen.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Sept.5	Sept. 12	Sept. 19	Sept. 26	Sept. 26 '40
Mixed Color Firsts	30	30	29½	31½	20¾
Nearby and Midwestern White and Premium Marks	40½-43	40½-43	40½-43	42½-45	35½-38
Nearby and Midwestern White Exchange Specials	37½-40	37½-40	37½-40	39½-42	32½-35
Pacific Coast Specials	42½-43	42½-43	43-44	45½-46½	35½-36
Nearby and Midwestern Brown Specials	36½	36	36	36-36½	25½-26½

Mid-Month Farm Price of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1	23.2	25.6	26.8				

Government Purchases

September purchases by the F. S. C. C. included approximately 88,000 cases of shell eggs and 5½ million pounds of dried eggs, the latter being equivalent to about 566,000 cases of shell eggs. No frozen eggs were purchased in September, although purchases were made in previous months to the extent of 66 million pounds since January 1. Calendar year totals to October 1 for shell eggs and dried eggs approximate 1,562,000 cases, and 18½ million pounds (equivalent to about 1,880,000 cases), respectively.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Purchases of Eggs by the U. S. Department of Agriculture

Week Ending	Shell	Frozen	Dried
	Cases	1,000 Pounds	1,000 Pounds
Sept. 6	——	——	1,298
Sept. 13	——	——	1,377
Sept. 20	42,850	——	1,345
Sept. 27	32,500	——	1,566

Eggs in Storage

Storage stocks of frozen eggs on Sept. 1 totaled 193,972,000 pounds, the largest on record for that date. This was 48,319,000 pounds greater than on Sept. 1 last year and 58,878,000 pounds above average. From Aug. 1 to Sept. 1, stocks decreased 1,107,000 pounds, compared with a decrease of 9,105,000 pounds during the same period last year. The firms reporting stocks of dried eggs on Sept. 1 showed that out of a total of 2,698,706 pounds only 807,877 pounds remained unsold.

Storage Holdings of Eggs

Kind	Sept. 1 5-Yr. Avg. 1936-40	Sept. 1 1940	Aug. 1 1941	Sept. 1 1941	% Change Sept.'40-Sept.'41
		Thousands			
Shell Eggs (cases)	7,035	7,241	6,641	6,134	–15.3
Frozen Eggs (lbs.)	135,094	145,653	195,097	193,972	+33.1
Frozen Case Equivalent (cases)*	3,860	4,162	5,574	5,542	+33.1
Total (cases)	10,895	11,403	12,215	11,676	+ 2.3

* Frozen eggs are converted on the basis of 35 pounds to the case.
** Includes 618,590 case owned by the SMA and FSCC.
*** Includes 19,212,391 pounds owned by the SMA and FSCC.

Poultry Meat Prices

The live poultry market ruled steady to firm on most classes during September. Price fluctuations were moderate and, with few exceptions, were unchanged to moderately higher at the close of the month. Fowl continued in relatively the best position, due to light receipts and a good demand stimulated by the Jewish holidays. Prices of young stock increased seasonally on eastern markets, although changing but little at Chicago. All markets are higher than a year ago by 3 to 5 cents on fowl and 2 cents on young stock.

The dressed poultry market ruled steady to firm during September with only moderate price changes. Receipts of dressed poultry at the four markets in August were slightly heavier than in August last year, but for the calendar year to September 1 were 2 per cent less than in the corresponding period of 1940. September receipts were also slightly greater than a year ago.

Receipts of live poultry at central western packing plants, which during August had exceeded a year earlier by about 10 per cent, fell off in the first half of September, but showed gains later in the month. This irregularity was due in part to changes in marketings of young and old stock. Compared with a year earlier, August marketings of young stock were about 40 per cent greater than the previous year. Marketings of fowl in August were about 15 per cent lighter than a year earlier. In September, however, receipts of young stocks continued to exceed those of 1940, but the increases dropped to about 15 per cent. Fowl marketings continued to be less than in 1940, and at an increased rate of decrease, averaging around 25 per cent.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Mid-Month Farm Price of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3	16.3	16.8	16.3				

Poultry in Storage

Storage Holdings of Poultry

Kind	Sept. 1 5-Yr. Avg. 1936-40	Sept. 1 1940	Aug. 1 1941	Sept. 1 1941	% Change Sept.'40-Sept.'41
		Thousand Pounds			
Broilers	9,753	6,247	6,874	9,743	+ 55.9
Fryers	2,745	2,539	3,650	5,282	+108.0
Roasters	4,369	3,365	9,361	9,823	+191.9
Fowls	13,165	19,807	14,661	17,060	− 13.9
Turkeys	11,419	21,090	19,750	12,888	− 38.9
Ducks	9,563	11,034	9,760	11,685	+ 5.8
Miscellaneous	14,828	12,350	11,958	12,098	− 2.1
Unclassified		5,746	5,192	6,697	+ 16.5
Total	65,842	82,178	81,206	85,276	+ 3.7

Turkey Outlook

The number of turkeys raised this year will be about the same as last year, according to preliminary estimates just released by the U. S. Department of Agriculture. The estimate of 33,553,000 turkeys is three-tenths of one per cent greater than for 1940, after making allowance on exceptional storm losses in November last year, which lessened the market supply by more than a million turkeys. In the preparation of this estimate, returns covering about 24,000 sample flocks and 4,000,000 turkeys, were used.

Present data on holdings fail to confirm earlier indications of an increase in production of several per cent over last year. While the estimated total of turkeys raised, with allowance for heavier average weights, is equivalent to about a 2 per cent increase in pounds of turkey, the actual supply for consumption during the holidays will probably be little different from that of last year because of smaller cold-storage holdings, probable increased January 1942 inventories, and increasing all-year-round consumption.

Regional changes in numbers raised show increases in all but four of the North Atlantic and West North Central States. The Pacific Coast States, Utah and Idaho also show increases but most of the Rocky Mountain States have decreased numbers. While more turkeys were raised in most of the East North Central and South Central States, total numbers in these two areas are fewer than last year owing to sharp decreases in the important producing States of Ohio, Indiana, Texas and Oklahoma. In the South Atlantic area numbers are the same as a year ago, Virginia remaining unchanged while decreases in Maryland, South Carolina and Florida are balanced by gains in the other States of that group.

The weight of turkeys continues to increase due to the growing popularity of the broad-breasted type. The average live weight of turkeys at time of marketing this year is expected to be about a fourth of a pound heavier than last year, 12.2 pounds for hens and 18.6 pounds for toms, compared with 12.0 pounds for hens and 18.3 pounds for toms last season.

The heaviest turkeys are in the Far Western States, the average there being reported at 17 pounds (13.0 for hens and 20.9 for toms). The State of Washington, which introduced the broad-breasted turkey, reports the highest averages, 14.2 pounds for hens and 22.8 pounds for toms. The next heaviest birds are reported from the North Atlantic States—12.3 pounds for hens and 19.0 pounds for toms. In the remaining areas, average weights range from 12.1 for hens and 18.2 for toms in the West North Central States to 11.3 for hens and 16.9 for toms in the South Central area, An increased proportion of birds is expected to be held over this winter for breeders next season. The sharp reduction in numbers of breeders held over last winter led to a shortage and high prices of hatching eggs this season, and to the necessity for saving a larger proportion of the eggs laid and extending the length of the hatching season. Even by these expedients, the number of turkey poults available fell short of the demand.

Indicated Number of Turkeys Raised, by Regions

Geographic Division	Number raised				Number on hand Sept. 1 1941 in % of 1940	Indicated number raised in 1941
	Average 1933-37	1938	1939	1940		
	Thousands				Percent	Thousands
N. Atlantic	1,339	1,661	2,072	2,116	105.3	2,229
E. N. Central	2,186	2,692	3,370	3,731	95.4	3,559
W. N. Central	6,703	7,829	10,225	10,614	107.5	11,407
S. Atlantic	2,145	2,166	2,548	2,600	100.0	2,599
S. Central	5,971	5,869	6,670	6,570	87.8	5,767
Western	5,416	6,062	7,847	7,832	102.0	7,992
United States	23,760	26,279	32,732	33,463	100.3	33,553

Hatchery Operations

The production of baby chicks by commercial hatcheries in August set a new high record for the month, the United States Department of Agriculture reports. Production is estimated at 20,805,000 chicks, 67 per cent more than in August last year and 56 per cent above the previous high (August 1939). Production for the first 8 months of this year is estimated at 962,060,000 chicks compared with the previous high record for that period of 845,456,000 chicks (1939).

The strong demand for chicks is largely the result of the heavy demand for broilers. Production of broilers is booming and hatcheries, lacking a good supply of hatching eggs, for some time have been unable to supply the demand.

Increases in the number of chicks hatched were reported in all of the important producing areas of the country—the increases ranging from 23 per cent in the Pacific Coast States to 134 per cent in the Mountain States. Increases in eggs set during August over a year earlier were also reported for all of the principal regions. These ranged from a 29 per cent increase in the Pacific Coast States to a 332 per cent increase in the West North Central States. Hatcheries in the West North Central States are showing more interest each year in supplying late-hatched chicks for the rapidly growing broiler production in that area and for the general increasing demand for chicks all over the country. The present extreme increase, however, is doubtless related also to the exceptional demand for increase in laying stock this year in that area.

Eggs Set by Commercial Hatcheries

Geographic Divisions	Aug. 1938	Aug. 1939	Aug. 1940	Aug. 1941	% chg. from Aug. 1940	Jan.-Aug. Inc. 1940	Jan.-Aug. Inc. 1941	% chg. from 1940
	Thousands							
New England	3,709	4,634	3,111	6,066	+ 95	57,620	75,012	+30
Middle Atlantic	1,525	1,903	2,071	2,754	+ 33	102,600	114,226	+11
South Atlantic	3,326	4,325	3,922	5,687	+ 45	87,292	116,937	+34
E. N. Central	2,301	2,823	2,855	6,167	+116	357,799	430,646	+20
W. N. Central	2,234	2,309	1,408	6,083	+332	358,595	468,889	+31
South Central	1,435	1,939	1,992	2,749	+ 38	106,674	140,514	+32
Mountain	215	275	169	443	+162	22,992	27,919	+21
Pacific	3,306	3,314	2,860	3,689	+ 29	60,394	75,169	+24
U. S.	18,051	21,522	18,388	33,638	+ 83	1,153,966	1,449,312	+26

The outlook continues favorable for comparatively large hatches during the remaining months of the year. The consumption of broilers during the past several months has been at extremely high levels; receipts of live young stock during August were fully 40 per cent above last year; and although the market showed some irregularity during the month, the general price trend was upward. While receipts have been heavy, prices have advanced since the close of the month on most markets. Prices of

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Aug. 1938	Aug. 1939	Aug. 1940	Aug. 1941	% chg. from Aug. 1940	Jan.-Aug. Inc. 1940	Jan.-Aug. Inc. 1941	% chg. from 1940
	Thousands							
New England	2,140	2,855	2,532	4,963	+ 96	40,325	55,407	+37
Middle Atlantic	790	1,119	1,359	1,821	+ 34	66,105	75,678	+14
South Atlantic	1,946	2,841	3,067	4,754	+ 55	63,371	85,603	+35
E. N. Central	1,530	1,962	1,995	4,369	+119	226,463	276,165	+22
W. N. Central	967	1,468	987	1,441	+ 46	241,820	301,963	+25
South Central	786	1,068	761	1,172	+ 54	74,571	97,321	+31
Mountain	123	149	96	225	+134	14,771	18,503	+25
Pacific	1,585	1,855	1,675	2,060	+ 23	41,238	51,420	+25
U. S.	9,867	13,317	12,472	20,805	+ 67	768,664	962,060	+25

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Sept. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Sept. 1, 1940	Aug. 1940	Aug. 1941	Aug. 1940	Aug. 1941	% change from Aug. 1940
New England	+ 65	4	2	96	98	+ 167
Middle Atlantic	+385	2	3	98	97	+5100
South Atlantic	+143	1	1	99	99	+ 200
E. N. Central	+ 85	12	6	88	94	+ 14
W. N. Central	+660	5	29	95	71	
South Central	+ 66	2	9	98	91	+1200
Mountain	+ 60	21	16	79	84	+ 100
Pacific	+ 51	53	48	47	52	+ 34
U. S.	+105	12	11	88	89	+ 116

young stock are now averaging from 2 to 3 cents a pound higher than at this time last year.

Egg production during August was the largest since 1929. It was 4 per cent larger than the August production of last year and 11 per cent above the 10-year (1930-39) average. However, egg markets remained steady to firm with prices generally about 9 cents per dozen higher than last year's levels. The continuation of egg prices at comparatively high levels is due to the necessity of obtaining eggs for shipment to England, and at the same time maintaining a continuous supply for domestic consumption.

Hatcheries report a large increase in advance orders over those on September 1 last year—the increase amounting to 105 per cent. That most of this demand is for chicks for broilers is indicated by the comparison of the relationship between light and heavy breeds hatched in August. Eighty-nine per cent of the total number of chicks hatched in August were of the heavy breed compared with 88 per cent in August last year. During the spring months when chicks are mostly intended for the laying flocks, the proportion of heavy breeds is only about 60 per cent of the total.

Egg Breaking Operations

Liquid egg production in August was estimated at 18,442,000 pounds, or 156 per cent larger than the production in August last year, the U. S. D. A. reports. Much of this increase is due to the need for large quantities of liquid eggs for drying purposes. Utilization reports showed that 35 per cent of the August production was used for drying purposes, compared with 15 per cent in August last year. Reports from five firms drying eggs showed a production of 1,033,619 pounds during the month, compared with only 85,247 pounds a year ago. A considerable proportion of both liquid and dried eggs is now being produced in plants that were closed down at this time last year.

Dried eggs in particular will be produced on an increasingly large scale for some time to come. In order to increase dried egg production from the present level of 12 million pounds annually to 100 million pounds for British and domestic use, 35 or 40 new plants are expected to be placed in operation as soon as possible. Government purchases of dried eggs for the current calendar year up to Sept. 12 have totaled 15,513,245 pounds. The Government announced that purchases of frozen eggs are to be discontinued on Sept. 13 until further notice. The Government purchase of frozen eggs so far this year has totaled 66,189,090 pounds.

Liquid Egg Production, August 1940-41

		August 1940	August 1941	% change Aug. '40-Aug. '41
		Thousand pounds		
Whole eggs		4,949	8,631	+ 74
Mixed eggs (plain)		1,412	3,486	+ 147
Mixed eggs (emulsions, also with sugar, salt, etc.)		15	258	+1,620
Egg whites (all descriptions)		439	3,080	+ 602
Egg yolks packed	Without salt, sugar, etc.	353	1,733	+ 391
	With sugar	36	1,254	+3,383
	With salt	——	——	——
	All yolk emulsions, including glycerine	——	——	——
Total		7,204	18,442	+ 156

Dried Egg Production

Commodity	Total Reported August 1941	Same Firm Comparison		
		Aug. 1940	Aug. 1941	% change Aug. '40-Aug. '41
	Pounds	Pounds		
Whole	1,513,787	0	801,764	——
Albumen	157,771	67,156	123,459	+ 84
Yolks	193,399	18,091	108,396	+ 499
Total	1,864,957	85,247	1,033,619	+1112
Firms reporting	6	5		

Grade Pullets for Sexual Maturity

It is a well known fact that all pullets of the same age do not start to lay eggs at the same time and that pullets that start to lay when they are between 160 and 210 days of age lay more eggs the first year than those that start laying at an earlier or later age. In other words, sexual maturity is inherited, and the number of eggs a pullet produces the first year is correlated with the age at which she starts to lay.

Because sexual maturity can be determined only once during the lifetime of each bird, every poultryman should develop some means of identifying each group of pullets that start to lay eggs at about the same age. If sufficient houses are not available for segregating different groups of pullets for sexual maturity, different colored or numbered legbands might be used for this purpose.

For example, those pullets that start to lay before they are 160 days of age should be identified with a red legband, those that lay when they are between 160 and 210 days with a blue legband, and those that reach sexual maturity at a later age than this with a black band.

—Utah Poultry Cooperator, September, 1941.

RESULTS OF LAYING TESTS

As the birds go into the last three weeks of the 1940-41 test, high pen honors are being hotly fought for by the T. N. Wilcox pen at Georgia and J. A. Hanson's top Storrs entry. Only 1.1 points separate the pens at 334 days, and the only certain prediction is that the final outcome will be close.

The Wilcox pen has already surpassed all previous Barred Rock records, thus several new hen and pen figures for that breed are certain to be established in the present test year. Other records may be broken, among them pen production for Rhode Island Reds, individual production for all breeds, and several minor breed records. Harco Orchards' Rhode Island Reds have shown an exceptionally strong pull in the stretch, and W. A. Seidel's White Leghorn hen at Texas continues to shell out eggs at a record-breaking rate.

J. A. Hanson's birds are almost certain to take the two top places in Leghorn competition, and his Rhode Island entry is fighting for third place against Crescent Farms' Florida pen. Harco Orchards has the Rhode Island Red title pretty well cinched, but the battles in New Hampshire and White Plymouth Rock competition are still close.

Storrs has a very slight margin over Texas in test averages, with Arizona close enough to keep the race open until the last egg is laid.

Twenty High Pens, All Breeds, to Sept. 1–(334 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	3741	4001.60	Georgia
J. A. Hanson	W. Leghorn	3743	4000.50	Storrs
Harco Orchards	Rhode Island Red	3557	3792.10	Storrs
E. B. Parmenter	Rhode Island Red	3436	3703.70	Maine
J. J. Warren	Rhode Island Red	3449	3694.30	Long Island
E. B. Parmenter	Rhode Island Red	3555	3654.65	Paterson, N. J.
J. A. Hanson	W. Leghorn	3445	3645.40	Storrs
J. A. Hanson	W. Leghorn	3368	3586.45	Rhode Island
Crescent Farms	White Leghorn	3389	3573.85	Florida
Roberts Poultry Farm	Rhode Island Red	3317	3572.75	Storrs
E. B. Parmenter	Rhode Island Red	3401	3560.40	Passaic, N. J.
H. J. Hardin	Rhode Island Red	3338	3525.55	Georgia
L. D. Bartholomew	Rhode Island Red	3278	3516.90	Storrs
E. B. Parmenter	Rhode Island Red	3248	3508.60	Rhode Island
Rapp's Poultry Farm	White Leghorn	3316	3487.95	Hunterdon, N. J.
Burr's Poultry Farm	White Leghorn	3378	3470.05	Pennsylvania
Richard H. Gee	Rhode Island Red	3291	3457.55	Rhode Island
J. A. Hanson	White Leghorn	3284	3455.50	Pennsylvania
E. B. Parmenter	Rhode Island Red	3327	3455.35	California
Booth Farms and Hatchery	White Leghorn	3268	3449.25	Georgia

High Pen in Each Test to Sept. 1–(334 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	3741	4001.60	Georgia
J. A. Hanson	White Leghorn	3743	4000.50	Storrs
E. B. Parmenter	Rhode Island Red	3436	3703.70	Maine
J. J. Warren	Rhode Island Red	3449	3694.30	Long Island
E. B. Parmenter	Rhode Island Red	3555	3654.65	Paterson, N. J.
J. A. Hanson	White Leghorn	3368	3586.45	Rhode Island
Crescent Farms	White Leghorn	3389	3573.85	Florida
E. B. Parmenter	Rhode Island Red	3401	3560.40	Passaic, N. J.
Rapp's Poultry Farm	White Leghorn	3316	3487.95	Hunterdon, N. J.
Burr's Poultry Farm	White Leghorn	3378	3470.05	Pennsylvania
E. B. Parmenter	Rhode Island Red	3322	3455.35	California
Kauder's Pedigreed Leghorns	White Leghorn	3326	3425.15	Texas
E. B. Parmenter	Rhode Island Red	3104	3297.65	Western New York
J. J. Warren	Rhode Island Red	3086	3293.30	Missouri
Foreman Poultry Farm	White Leghorn	3215	3251.35	Oklahoma
A. L. Frees	New Hampshire	3059	3221.90	Arizona
Foreman Poultry Farm	White Leghorn	3003	3154.35	Michigan
Holser's Valley Farm	White Leghorn	2996	3139.50	Central New York

High Pen in Each Test for August

Owner	Breed	Eggs	Points	Test
Wm. Gillmesiter	White Leghorn	341	363.20	Western New York
J. A. Hanson	White Leghorn	312	337.45	Storrs
Content Farms	White Leghorn	317	333.45	Central New York
Hogsett Poultry Ranch	White Leghorn	308	324.10	California
Burr's Poultry Farm	White Leghorn	307	321.65	Pennsylvania
McCoon's Poultry Breed. Fm.	White Leghorn	294	320.15	Texas
T. N. Wilcox	Barred Rock	293	319.80	Georgia
Sebold Breeding Farm	White Leghorn	303	312.25	Passaic, N. J.
J. A. Hanson	White Leghorn	288	311.65	Rhode Island
Francis Townsend	White Leghorn	296	311.55	Paterson, N. J.
R. C. E. Wallace	Barred Rock	281	298.65	Long Island
Norman W. Amidon	Rhode Island Red	273	294.00	Maine
Booth Farms and Hatchery	White Leghorn	272	293.70	Missouri
A. L. Frees	New Hampshire	273	288.60	Arizona
To-Lani Farm	Rhode Island Red	293	288.50	Oklahoma
Booth Frams and Hatchery	White Leghorn	270	285.20	Florida
Dembro Poultry Farm	White Leghorn	260	281.70	Hunterdon, N. J.
Rochelle Hatchery	White Leghorn	268	276.00	Michigan

High Pen in Each Breed to Sept. 1–(334 Days)

Owner	Breed	Eggs	Points	Test
T. N. Wilcox	Barred Rock	3741	4001.60	Georgia
J. A. Hanson	White Leghorn	3743	4000.50	Storrs
Harco Orchards	S. C. Rhode Island Red	3557	3792.10	Storrs
Thos. J. Harrold	New Hampshire	3190	3313.40	Georgia
Paul Hansen	Black Australorp	2959	3026.65	California
Alfred MacMillan	White Rock	2745	2809.50	Texas
Raymond S. Thomas	Ancona	2648	2619.30	Pennsylvania
Wade Brown	White Wyandotte	2602	2614.95	Oklahoma
Iowa Master Breeders	R. C. Rhode Island Red	2395	2511.85	Texas
E. J. Covey	Black Minorca	2288	2400.95	Texas
Illinois Hatchery	Brown Leghorn	2143	2239.65	Texas
Superior Hatchery	Light Brahma	2159	2299.85	Texas
Ward's Poultry Farm	Buff Leghorn	2205	2198.80	Oklahoma
Lindstrom Poultry Farm	Buff Minorca	2101	2067.25	Texas
Iowa Master Breeders	Buff Orpington	1818	1967.20	Missouri
S. E. Raymond	Lamona	1702	1820.25	Storrs
Snowdrift Acres	White Giant	1649	1791.65	Rhode Island
Colonial Poultry Farm	White Minorca	1518	1651.60	Missouri

High Hen in Each Breed to Sept. 1–(334 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	323	354.25	Texas
E. B. Parmenter	S. C. Rhode Island Red	318	347.45	Rhode Island
T. N. Wilcox	Barred Rock	309	337.25	Georgia
Thos. J. Harrold	New Hampshire	305	318.05	Georgia
Paul Hansen	Black Australorp	286	308.95	California
Drumm Egg Farm	White Rock	286	307.25	Georgia
Iowa Master Breeders	R. C. Rhode Island Red	272	295.75	Texas
Lindstrom Poultry Farm	White Wyandotte	289	292.40	Pennsylvania
Superior Hatchery	Light Brahma	255	267.95	Texas
S. E. Raymond	Lamona	249	265.20	Storrs
E. J. Covey	Black Minorca	239	254.85	Texas
Raymond S. Thomas	Ancona	269	250.25	Pennsylvania
Iowa Master Breeders	Buff Orpington	225	247.00	Missouri
R. Murphy	White Giant	233	246.70	Missouri
Illinois Hatchery	Brown Leghorn	256	241.70	Texas
Lindstrom Poultry Farm	Buff Minorca	225	231.20	Texas
Colonial Poultry Farms	White Minorca	209	229.15	Missouri
Ward's Poultry Farm	Buff Leghorn	214	209.95	Oklahoma

High Hen in Each Test to Sept. 1–(334 Days)

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	323	354.25	Texas
Rapp's Poultry Farm	White Leghorn	318	349.15	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	318	347.45	Rhode Island
E. B. Parmenter	Rhode Island Red	317	342.40	Storrs
Foreman Poultry Farm	White Leghorn	315	341.80	Georgia
G. B. Treadwell	Rhode Island Red	313	340.65	Maine
J. J. Warren	Rhode Island Red	317	336.35	Western New York
W. A. Seidel	White Leghorn	308	333.90	Arizona
Foreman Poultry Farm	White Leghorn	313	332.50	Pennsylvania
Missouri Valley Poul. Fm.	Rhode Island Red	309	332.40	Oklahoma
J. A. Hanson	White Leghorn	309	331.55	California
George A. Pearce	Rhode Island Red	305	331.20	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	300	324.35	Paterson, N. J.
E. B. Parmenter	Rhode Island Red	301	323.80	Long Island
Schaffner Poultry Farm	White Leghorn	304	323.60	Florida
Missouri Valley Hatchery	Rhode Island Red	292	317.85	Missouri
Foreman Poultry Farm	White Leghorn	301	315.20	Michigan
East Side Leghorns	White Leghorn	322	308.15	Central New York

Twenty High White Leghorn Pens to Sept. 1–(334 Days)

Owner	Eggs	Points	Test
J. A. Hanson	3743	4000.50	Storrs
J. A. Hanson	3445	3645.40	Storrs
J. A. Hanson	3368	3586.45	Rhode Island
Crescent Farms	3389	3573.85	Florida
Rapp's Poultry Farm	3316	3487.95	Hunterdon, N. J.
Burr's Poultry Farm	3378	3470.05	Pennsylvania
J. A. Hanson	3284	3455.50	Pennsylvania
Booth Farms and Hatchery	3268	3449.25	Georgia
Kauder's Pedigreed Leghorns	3326	3425.15	Texas
Dryden Poultry Breeding Farm	3195	3334.30	Texas
Colonial Poultry Farm	3194	3313.60	Maine
J. A. Hanson	3185	3311.85	Passaic, N. J.
Rochelle Farm and Hatchery	3233	3292.70	Texas
Wm. Johnson	3144	3291.90	Texas
I. Commer	3194	3289.00	Texas
McCoon Poultry Breeding Farm	3168	3262.25	Texas
Foreman Poultry Farm	3215	3251.35	Oklahoma
Foreman Poultry Farm	3104	3243.85	Florida
McCoon Poultry Breeding Farm	3279	3241.10	California
Creighton Bros.	3083	3222.35	Hunterdon, N. J.

Twenty High Rhode Island Red Pens to Sept. 1–(334 Days)

Owner	Eggs	Points	Test
Harco Orchards	3557	3792.10	Storrs
E. B. Parmenter	3436	3703.70	Maine
J. J. Warren	3449	3694.30	Long Island
E. B. Parmenter	3555	3654.65	Paterson, N. J.
Roberts Poultry Farm	3317	3572.75	Storrs
E. B. Parmenter	3401	3560.40	Passaic, N. J.
H. J. Hardin	3338	3525.55	Georgia
L. D. Bartholomew	3278	3516.90	Storrs
E. B. Parmenter	3248	3508.60	Rhode Island
Richard H. Gee	3291	3457.55	Rhode Island
E. B. Parmenter	3322	3455.35	California
C. C. Hersey	3341	3442.65	Storrs
G. B. Treadwell	3223	3405.45	Maine
J. J. Warren	3227	3388.00	Storrs
J. J. Warren	3096	3348.95	Maine
E. B. Parmenter	3163	3342.00	California
G. B. Treadwell	3172	3340.95	Storrs
J. J. Warren	3150	3333.05	Texas
J. V. N. Stults	3256	3326.85	Storrs
J. J. Warren	3209	3322.70	Long Island

Twenty High New Hampshire Pens to Sept. 1–(334 Days)

Owner	Eggs	Points	Test
Thos. J. Harrold	3190	3313.40	Georgia
Colonial Poultry Farm	3048	3245.10	Texas
George A. Pearce	3168	3233.60	Hunterdon, N. J.
A. L. Frees	3059	3221.90	Arizona
Joachim Breeding Farm	3063	3207.95	Long Island
Williamson's New Hampshire Farm	3022	3191.05	Florida
M. L. Estabrook	3036	3176.50	Maine
Joachim Breeding Farm	2921	3163.55	Storrs
C. D. Cummings	3092	3119.65	Georgia
Lucas Poultry Farm	2932	3115.55	Missouri
Mapes Poultry Farm	2912	3075.50	Western New York
G. E. Nemec	2855	3028.60	Arizona
Hank's Hennery	2828	3018.65	Storrs
Gold Spot Hatchery	2834	2992.30	Arizona
Ned C. Willoughby	2852	2963.20	Georgia
C. E. Colby	2884	2957.80	Storrs
Joachim Breeding Farm	2803	2951.40	Long Island
Ned C. Willoughby	3070	2947.20	Georgia
Ned C. Willoughby	2898	2929.80	Florida
Nedlar Farm	2773	2908.75	Maine

Twenty High Barred Plymouth Rock Pens to Sept. 1–(334 Days)

Owner	Eggs	Points	Test
T. N. Wilcox	3741	4001.60	Georgia
A. J. Urquhart	3248	3422.40	Storrs
David T. Cohen	3175	3384.85	Pennsylvania
T. N. Wilcox	3183	3376.40	Florida
J. W. Schaible	3168	3286.70	Hunterdon, N. J.
Dryden Poultry Breeding Farm	3115	3212.40	California
Dryden Poultry Breeding Farm	3125	3176.75	Pennsylvania
David T. Cohen	3047	3127.55	Storrs
R. C. E. Wallace	3019	3127.25	Long Island
Booth Farms & Hatchery	2895	3094.45	Missouri
Dryden Poultry Breeding Farm	2936	3080.10	Missouri
Dryden Poultry Breeding Farm	2931	3059.35	Storrs
Fuzzydele Farms	2854	3040.00	Central New York
David T. Cohen	2794	3025.40	Central New York
R. C. E. Wallace	2887	2993.30	Oklahoma
Dryden Poultry Breeding Farm	2828	2989.45	California
Piho Brothers	2963	2958.35	Maine
Foster Jameson	2769	2938.45	Maine
Fuzzydele Farms	2828	2926.60	Storrs
E. B. Parmenter	2806	2923.50	Pennsylvania

Twenty High White Plymouth Rock Pens to Sept. 1—(334 Days)

Owner	Eggs	Points	Test
Alfred MacMillan	2745	2809.50	Texas
Colonial Poultry Farm	2617	2798.00	Oklahoma
Carter Dunham	2679	2786.10	Texas
Albert C. Lawton	2706	2718.40	Storrs
Riley Poultry Farm	2641	2690.40	Texas
Booth Farms and Hatchery	2638	2664.45	Texas
Missouri Valley Hatchery	2506	2638.55	Missouri
Knepley Hatchery	2521	2593.55	Oklahoma
Carter Dunham	2432	2568.55	Storrs
Airy View Farm	2440	2549.75	Hunterdon, N. J.
C. W. Winkler	2436	2549.70	Oklahoma
Leroy McCurdy	2411	2530.65	Missouri
Riley Poultry Farm	2524	2509.55	Michigan
Riley Poultry Farm	2438	2493.90	Storrs
Philip S. Davis	2365	2460.70	Central New York
Homestead Farm	2566	2450.25	Pennsylvania
Quimby School	2349	2441.55	Rhode Island
Carter Dunham	2408	2441.05	Georgia
Kalerok Farm	2279	2438.30	Rhode Island
Riley Poultry Farm	2481	2438.25	Oklahoma

Average Production and Mortality, Each Test, to Sept. 1—(334 Days)

Test	No. Birds in Test	Eggs Per Bird to Date	Points Per Bird to Date	Egg Wt. In Ounces Per Doz.	Per Cent Mortality for Aug.	Per Cent Mortality to Date
Storrs	1,300	199.68	207.80	24.80	2.38	17.62
Texas	1,300	200.70	207.41	24.66	4.08	20.39
Arizona	390	198.02	206.88	24.88	3.08	18.98
California	650	198.85	205.24	24.64	2.15	14.62
Pennsylvania	1,027	197.13	202.76	24.56	1.46	17.82
Paterson, N. J.	169	193.13	200.18	24.72	.60	17.76
Rhode Island	546	188.02	197.53	25.00	3.11	19.24
Hunterdon, N. J.	650	190.37	196.86	24.68	.77	15.24
Passaic, N. J.	1,014	191.70	196.14	24.46	2.17	16.47
Georgia	1,300	191.84	195.88	24.42	1.85	20.24
Western New York	884	186.12	195.26	24.98	.63	10.70
Florida	1,248	188.03	193.90	24.62	1.12	17.39
Oklahoma	650	187.57	190.67	24.32	2.62	17.70
Central New York	910	182.29	187.55	24.56	1.54	15.61
Missouri	780	175.06	186.72	25.32	1.93	21.29
Maine	975	179.61	184.10	24.48	2.06	17.65
Long Island	1,131	180.78	183.88	24.22	2.56	18.39
Michigan	780	158.44	165.85	24.92	1.23	22.18
All Tests	15,704	188.18	194.70	24.68	1.96	17.73

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Eggs in Nutrition

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Transcript of a Talk

EGGS can and should play a very important role in both our national nutrition program and our food-for-defense program. The importance of eggs in our national nutrition program arises from their preeminence among the protective foods. They contain most of the known vitamins; they contain an unusually good assortment of the mineral elements; they contain proteins of high biological value; and they contain a unique collection of fats and fatlike compounds. In short, an egg is normally a complete and balanced combination of all the nutritive elements required for the full development of a chick embryo.

In an egg is everything that is necessary for the formation of blood, nerve, and brain; muscle, tendon, and bone; skin, nail, and feather; and enough nourishment to enable the chick to break through its shell and survive for several days without food from any other source. No other single foodstuff—no other protective food—has all these properties. Truly, eggs are nature's perfect food—and they come to us in their own sealed, sanitary containers.

From the standpoint of our food-for-defense program, eggs have still other outstanding properties. They may be kept in an edible condition for a comparatively long time if

From a talk presented at the Connecticut Egg Grading and Marketing School, University of Connecticut, Storrs, Conn., Sept. 8, 1941

they are placed in cold storage. They may be dried to form an extremely concentrated food that is easily shipped and keeps well under ordinary conditions. The whites of eggs, if dried and stored in air-tight containers, keep well in any climate. The yolks, if mixed with certain starches and partially dried, form a highly nutritious food product that can be kept without the aid of refrigeration, even in the tropics.

Shell Color Unimportant

Some persons believe that an egg with a brown shell is more nutritious than one with a white shell. Others maintain that white eggs have a milder flavor than brown eggs. Still others claim that the albumen of a brown egg may be beaten to a lighter foam than that of a white egg. The truth is that the nutritive value, flavor, and other properties of an egg are independent of the color of its shell.

Of course, all eggs do not have precisely the same nutritive value; some are larger than others and supply correspondingly more nourishment, some contain a greater proportion of yolk, and some contain more of certain vitamins. Nevertheless, eggs are uniformly a good food and such differences as do exist among individual eggs are relatively unimportant.

The value of eggs as a food depends chiefly on the completeness with which they are digested and absorbed, their ability to satisfy hunger, and their content of essential nutritive elements. Obviously, the more completely a food is digested and absorbed the more nourishment it supplies. Foods that satisfy hunger easily tend to discourage overeating. And foods that supply the essential nutritive elements are necessary for the maintenance of health and vigor.

The digestibility of eggs is very high. The fat of the yolk, which is colloidally dispersed, is almost completely digested. The protein also is easily and almost completely utilized. Cooking has little or no effect on the digestibility and utilization of the protein and fat of the yolk, but it may materially affect the digestion and absorption of the white. According to some investigators, raw egg white is not easily digested if eaten alone, but when mixed and eaten with other foods its digestibility is greatly increased. The coefficient of digestibility of raw egg white has been given as 80 per cent, whereas that of cooked egg white is nearly 90 per cent.

Cooking Influences Digestion

It has been found that although the method of cooking influences the rate of digestion of eggs it does not greatly influence the percentage that is digested and utilized.

The ability of a food to satisfy hunger depends on the activity it stimulates in the digestive tract.

The mere consumption of food does not always satisfy hunger. It is only when the stomach and upper intestine contain food, and their muscular and secretory activities are stimulated, that a feeling of satiety results. Experimentally, the ability of a food to satisfy hunger—that is, its satiety value—may be measured by the length of time it remains in the stomach and the quantity of gastric juice it causes to be secreted.

The satiety value of eggs is fairly high but not as high as that of meat or milk. On the other hand, it is considerably higher than that of fish, bread, or potatoes. Cooking affects the satiety value of eggs. Scrambled eggs leave the stomach more slowly than either hard-boiled eggs or soft-boiled eggs and, hence, have a greater satiety value. Raw eggs have a comparatively poor satiety value because they leave the stomach fairly rapidly.

Composition of Eggs

On an average, the white accounts for about 58 per cent of the weight of a standard 2-ounce egg, the yolk for about 32 per cent, and the shell for about 10 per cent. The white contains nearly 87 per cent of water, nearly 12 per cent of protein, and very small quantities of sugars, minerals, fats, and other substances. The yolk contains about 49 per cent of water, about 32 per cent of fat, about 17 per cent of protein, and comparatively small quantities of sugars, minerals, and other substances. The shell consists mostly of calcium carbonate, but contains some organic matter, water, and mineral substances other than calcium carbonate.

The edible portion of a standard 2-ounce egg has the following composition: water, 73 per cent; protein, 13.3; fat, 11.5; nitrogen-free extract, 1.1; free sugar as glucose, 0.3; and ash, 1.

Proteins, Fats, and Ash

The total protein of an egg consists of the following individual proteins: albumin, globulin, mucin, conalbumin, mucoid, vitellin, and livetin. The total fat consists of so-called neutral fat, lecithin, cephalin, sphingomyelin, cholesterol, and the fat-soluble vitamins. The nitrogen-free extract consists of miscellaneous compounds. In the ash are found appreciable quantities of potassium, sodium, magnesium, calcium, iron, sulphur, phosphorus and chlorine, and traces of aluminum, zinc, copper, lead, fluorine, iodine, silicon, arsenic, boron, chormium, rubidium, strontium, titanium, and vanadium.

Vitamins in Eggs

As previously stated, eggs contain most of the known vitamins; the outstanding exception is vitamin C. The list of vitamins and vitamin-like compounds known to be present in eggs includes vitamin A, vitamin B_1 (thiamin), vitamin D, vitamin E, vitamin F (essential fat acids), vitamin G (riboflavin), vitamin H (biotin), vitamin K; (the anti-hemmorrhagic factor), choline, nicotinic acid (the pellagra-preventing factor), and pantothenic acid. It is highly probable that eggs also contain vitamin B_6 and still other vitamins and vitaminlike compounds that are as yet unknown.

The quantity of the several vitamins in eggs varies with the diet of the chickens and the season of the year. The Bureau of Home Economics has determined the vitamin-A content of representative samples of fresh eggs, both graded and ungraded, purchased from dairies, grocery stores, markets, and direct from the farm. They found that an average winter egg contained about 340 International Units of vitamin A, whereas an average summer egg contained about 670 International Units, or nearly twice as much. According to the available data, the vitamin-A content of an average egg may be given as about 500 International Units.

Content of Vitamins A and B

The vitamin-B_1 content of eggs has not been studied as extensively as has the vitamin-A content. However, there is reason to believe that the average content lies between 60 and 90 micrograms, or between 20 and 30 International Units, and that the average value is more constant than the value for vitamin A.

The average vitamin-D content may be given as about 30 International Units, but the differences between individual eggs probably is relatively greater than it is in the case of vitamin A. The average nicotinic-acid content may be given as about 750 micrograms. The average vitamin-G content may be given as about 200 micrograms; possibly more. There are too few quantitative data on the content of the other vitamins to enable us to state even an approximate average value.

Eggs Have Many Values

To the average layman, many of the numerical data I have given and many of the compounds I have mentioned probably have little significance, but to the nutritionist they mean a great deal. These data and other data that are available mean that a single average egg can supply about one-tenth of an adult's daily requirement of protein, one-eighth of the iron, one-seventh of the phosphorus, one-tenth of the vitamin A, and at least one-fifteenth of the vitamin D. They mean also that a single average egg makes a worthwhile contribution to an adult's daily requirement of calcium, copper, manganese, iodine, vitamin B_1, vitamin G, and nicotinic acid. In addition, an egg supplies many other nutritional factors, and some of the elements, such as aluminum, silicon, and boron, that are found in traces in human tissues.

Not only can a single average egg supply about one-tenth of an adult's daily requirement of protein, but that which it does supply is of unusually high biological value. As a matter of fact, the quality of this protein is so high that eggs can be used as the sole source of protein for growing animals. Moreover, there is good reason to believe that if all the protein in one's diet were equal in quality to that supplied by eggs the total daily requirement of protein would be significantly less than the quantity most nutritionists consider as being desirable.

Importance of Choline

Likewise, the fat of eggs is not just ordinary fat. It contains an appreciable quantity of linoleic acid, which is one of the essential fat acids. Moreover, approximately one-fourth of the fat is lecithin, which is an excellent source of choline, and about one-tenth is cephalin and cholesterol, which play important, but as yet poorly understood, roles in animal nutrition. The choline in the lecithin of egg fat is important, because choline has one or more special functions in the metabolism of fat. This has been demonstrated experimentally by producing a fatty degeneration of the liver of laboratory animals by feeding them diets deficient in choline.

It has been demonstrated a number of times that the iron in some foodstuffs is more readily available than that in others. Here, again, eggs have a special value. It is almost as if the iron in eggs were of a special kind for the formation of hemoglobin. In any case, it is possible to demonstrate that within a comparatively short time after an egg is incubated, hemoglobin, the iron-containing constituent of blood, is formed. The only iron available to the developing embryo is that which was present when the egg was laid; nevertheless, when the chick breaks out of its shell, it has a full store of hemoglobin.

If a growing child is given a deficient diet, its development soon becomes subnormal, and its vigor and health may become seriously impaired. Depending on the nature of the deficiency, the symptoms of such diseases as xerophthalmia, scurvy, and rickets may appear. Likewise, if an adult consumes a deficient diet, his health and vigor may be appreciably reduced and in more or less extreme cases he may exhibit the symptoms of night blindness, beriberi, scurvy, osteomalacia, or pellegra.

Prevent Deficiency Diseases

As is generally known, xerophthalmia and night blindness result from a deficiency of vitamin A; beriberi, primarily from a deficiency of vitamin B_1; scurvy, from a deficiency of vitamin C; rickets and osteomalacia, chiefly from a deficiency of vitamin D, but sometimes from a deficiency of calcium or phosphorus, or of both; and pellagra, from a deficiency of nicotinic acid. These diseases are known as deficiency diseases.

The regular consumption of certain foods tends to prevent the occurrence of these deficiency diseases. Among such foods are eggs, milk, green vegetables, certain fruits—particularly the citrus fruits—and the glandular organs, such as the liver, pancreas, and kidneys. To describe these foods, McCollum coined the term "Protective Foods," because they supply the essential substances that most often are lacking in the diet and, therefore, tend to protect one against nutritional failure.

Eggs Lack Vitamin C

It would be a serious mistake to depend on any one of the protective foods as a means of avoiding nutritional deficiencies, because not one of them contains all the essential nutritive factors in adequate quantity. Milk, for example, is not a good source of iron, not a particularly good source of vitamin D, and, if pasteurized, is definitely a poor source of vitamin C; nevertheless, it is an excellent protective food. The most outstanding shortcoming of eggs is their deficiency of vitamin C. Together, milk and eggs supply in good quantity practically all the essential nutritive elements, but even this combination of protective foods is markedly deficient in vitamin C. To obtain an adequate supply of vitamin C, it is necessary to include vegetables or fruit in the diet.

Eggs in Special Diets

In a number of diseases it is desirable, and often necessary, to prescribe special diets. If we knew more about nutrition and the etiology of disease, it is probable that diet would have an even more important place in therapy than it now has. In any case, experience has shown that diet is very important in such diseases as diabetes, gout, anemia, peptic ulcer, and colitis. Moreover, there is some evidence that in these diseases eggs can be included in the diet to advantage. Also, it is quite generally accepted that eggs are of value in so-called upbuilding diets.

In diabetes, special consideration is given to the carbohydrate and protein content of the diet. In order to prevent sugar from appearing in the urine, the carbohydrate in the diet must be kept at a low level; and inasmuch as protein may be converted in part into sugar, it is desirable to keep the protein at a low but adequate level. For these reasons, eggs are an especially valuable article of the diabetic's diet. They contain very little sugar and their protein is tolerated better than that from other animal sources, such as meat and milk. It is of some interest that an insulin-like compound has

been found in egg yolk; unfortunately, however, this compound has not been studied extensively and its potentialities are not known.

In formulating diets for patients with gout, eggs may be used with distinct advantage, because they supply protein of excellent quality but contain no appreciable quantity of purines, which are the precursors of uric acid. On the other hand other sources of animal protein, except milk and cheese, are contraindicated because of their comparatively high purine content.

In the treatment of secondary anemias, food plays the predominant role. This has been demonstrated repeatedly in experiments with laboratory animals. If the diet is poor, blood regeneration is poor; but if the diet is good, blood regeneration tends to be good. For this reason, eggs are of value because they contain so many of the essential nutritive factors. Then, too, as previously stated, they contain an appreciable quantity of iron and some copper, and the iron is in a form in which it is readily available for hemoglobin formation. This is not to say that eggs can take the place of liver or hog stomach or even lean beef, in the treatment of secondary anemias, but they do make worthwhile contributions to the diet.

In the treatment of peptic ulcer and colitis, it usually is deemed advisable to use so-called low residue diets. Here, again, eggs have a property that make them useful. Cooked eggs are almost completely digested and leave but little residue.

Clean Eggs vs. Cleaned Eggs

Rice hulls or planer shavings make excellent nesting material and are economical to use. The number of soiled and dirty eggs will be greatly reduced if this kind of material is used liberally and changed often.

The time and expense necessary to change nesting material will be more than repaid by the time and expense saved in cleaning dirty eggs. Don't overlook the fact that a clean egg is always better than a cleaned egg.

—The Eggsaminer.

❝ LAST year there were at least four turkey dinners raised for every man, woman and child in this country. While the old idea still prevails that turkey is only good to eat at Thanksgiving and Christmas, it is fast becoming a year-round dish.

—Herbert Beyers at I. B. C. A. Convention, Kansas City, Mo., July 23, 1941.

Recovery of By-Products from Poultry Evisceration Waste

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Condensed from U. S. Egg and Poultry Magazine

THERE is an increasing interest in the profitable disposal of the wastes from poultry packing plants. It is due to increased appreciation of the possibilities for the profitable utilization of packing plant wastes and to the growth of evisceration with a natural concentration of by-products at one point.

The percentage of the live weight of chicken that reaches the consumer as ready-to-cook poultry varies from 65 to 75 per cent. The excellent work of Mitchell et al. shows the percentage of available by-products from poultry packing operations.

Among the by-products of preparing poultry for the table, only the feathers seem to have a ready market. Prices for these vary widely depending on pillow sales, imports of foreign feathers, and other factors. Raw heads, feet, viscera, and blood have been used for hog feed, but there are many objections to this practice.

With the increase in the evisceration of poultry, therefore, efforts are being made to find more suitable outlets for these wastes. The production of meat scrap products and soap stock oils seemed to offer the most promising outlets for these wastes. In this paper we will describe some recovery trials and discuss practical utilization of the products obtained.

Mitchell et al. have reported on the changes which occur in chemical composition of chicken offals with age and sex. Their data indicated that in broiler offals (heads, feet, and viscera) the viscera made up a greater proportion of the weight (13.5 per cent) than in fryers or roasters (8.8 per cent).

TABLE 1—Yield of Fat and Meat Scrap from Chicken Offals (15 pounds steam for five hours—oil separated, residue dried).

Kind	Free Fat	Press-able Fat*	Total Fat	Meat Scrap	Total Yield
		Per Cent			
Broilers, fryers	None	1.7	1.7	22.7	24.4
Roasters	1.0	4.0	5.0	28.0	33.0
Light hens	7.6	4.0	11.6	21.7	33.3
Heavy hens	13.8	6.5	20.3	21.7	45.0

*Based on 10 per cent fat in meat scrap.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(The U. S. Egg and Poultry Magazine, October, 1941)

TABLE 2 — Analysis of Wet-Cooked Chicken Offal Fat from Heavy Hens.

Material	Per Cent
Moisture	0.05
Fatty acids	1.55
Titer	32.30
Unsaponifiable material	0.68

Chemical analysis of these wastes showed that offals from broilers were high in moisture (73.6 per cent) and low in fat (5.0 per cent), offals from roasters were lower in moisture (58.5 per cent) and a little higher in fat (9.7 per cent), Leghorn hen offals contained 62.5 per cent moisture and 20.2 per cent fat, and White Rock hens were very low in moisture (48.1 per cent) and very high in fat (23.1 per cent).

The most striking thing then about these data are the differences between young and mature cockerels, between Leghorn and White Rock hens, and finally between cockerels and hens. The older the chicken, the more fat there is in the offals and the less water. Hen offals are much more fat than those from cockerels. These are extremely important considerations in the production of meat scrap and oil. The oil is usually the highest priced by-product, while, obviously, the water has no value and is largely evaporated during rendering.

The offals of several thousand birds, slaughtered daily, were available for experimental use. Selections for certain weights and sex were first made to determine the relative yield of fat and meat scrap under actual plant conditions.

Method of Rendering

The rendering of these wastes (heads, feet and viscera) was done in a large steam autoclave. The operations simulated wet rendering as practiced under commercial conditions. The free oil was siphoned off and the residue was dried in an air oven. It was assumed that oil could have been extracted from this dry material by pressing or expelling methods. This was termed pressable fat and was added to the free fat to give total recoverable fat.

Most Offal from Heavy Hens

Table 1 gives the results of these tests. The work of Mitchell et al. is largely confirmed, though the exact figures varied somewhat. This would be expected, since the fat content of birds varies greatly, depending upon the feeding and management practices, and also due to the exclusion of blood and feathers. It is evident that the greatest fat values are obtained from the offals of heavy hens. The total yield (fat and scrap) is also greatest from the heavy hens.

The fat from these trials was analyzed and the pertinent tests are shown in Table 2. This interesting oil offers possibilities for soap stock and special lubrication purposes.

Most modern rendering plants for by-products use dry rendering equipment. Essentially, the process consists of drying in a steam-jacketed drum, with or without the use of a vacuum. The product is agitated with rotating scrapers while drying. The vapor is drawn off and expelled into the sewer with a water spray. The free oil is drained off and the oil-soaked scrap pressed or expelled to remove the remaining oil.

Two large samples of offals were dried using a late model dry renderer (Allbright-Nell, 1936). The first run consisted of approximately 1 ton of mixed offal (mostly springs) and the second of nearly 2 tons of mixed offal. The drying was accomplished at 40 to 60 pounds of steam pressure and 20 inches of vacuum. After drying, the oil was expressed with a hydraulic press. There was no free oil in either run. The results of these two tests are shown in Table 3.

Grit Complicates Methods

In the first run, grit from the gizzards gave considerable trouble in the agitators. As a result, the gizzard linings were eliminated from the second test. The oil was somewhat dark in both runs, but judicious use of lower steam pressures and a higher vacuum on the material probably would have eliminated this defect.

Oil Helps in Rendering

The large percentage of fryers accounted for the low fat yield and also made easy rendering difficult. If there is ample oil present during rendering, the meat scrap literally fries in the hot oil and prevents sticking, burning, and, consequently, dark oil. Offals from hens would thus render much more satisfactorily than those from cockerels.

Some difficulty was experienced in getting a firm cake in the hydraulic press, the chicken product being somewhat more spongy than that from heavy livestock. However, this defect seemed to be much less apparent in the second run.

A representative sample of this poultry meat scrap was ground and tested for its biological value when fed to chicks as the sole source of supplementary protein.

TABLE 3—Yield of Meat Scrap and Fat from Dry-Rendered Chicken Offals.

Trial	Kind of Viscera	Per-Cent of Recovery		Analysis—Meat Scrap			Comments
		Oil	Meat Scrap	Moisture	Protein	Fat	
		Per Cent		Per Cent			
1	Mixed	8.1	22.4	2.0	62.2	8.9	Oil dark, pebbles from gizzard objectionable.
2	90% Fryers 10% hens	4.6	23.1	3.5	52.2	9.6	Oil somewhat dark.

TABLE 4 — Growth of White Plymouth Rock Chicks on Three Rations Containing Different Sources of Supplementary Protein

	Chicken scrap	Meat scrap	3-MFS*
No. chicks at start ..	62	62	62
Mortality	2	3	3
Average weight at start (gms.)	36	36	36
Average weight at 28 days (gms.)	293	282	286
Average weight at 56 days (gms.)	687	639	654

*Contains 33 1/3 per cent meat scraps.

Three lots of 62 White Plymouth Rock chicks each were started on three test rations. The chicks were fed the test rations from the time they came from the incubator until the end of the test.

The chicken meat scrap was compared with a typical commercial meat scrap and a 1:1:1 mixture of meat scrap, fishmeal, and soybean oil meal, which has been shown to be an efficient combination in this ration. The protein level was equalized in the chicken scrap ration, and a 1:1:1 mixture ration to that of the standard meat scrap ration, by small additions of starch. Results are presented in Tables 4.

There is an indication that the chicken scrap was slightly superior even to the fish meal—meat scrap—soybean oil meal combination, but the differences were not statistically significant. The chicks in all three lots grew and lived well, as is indicated by Table 4.

Samples of oil were submitted to two soap manufacturers and one lubricating oil manufacturer. All three reported that the oil could be used satisfactorily in one or more of their products.

Flat and Filler Moisture

Anything which is bone dry and comes in contact with an egg draws the moisture from the egg and causes it to shrink to a greater or less degree. Your flats and fillers and egg cases are no exception to the rule. When you secure a bundle of flats or fillers, be sure to keep them in the same humid atmosphere in which you keep your eggs. Let them absorb just a little of the natural moisture in the air so that when you case your eggs there will be moisture in the flats and fillers and they will not tend to draw moisture from the eggs.

Of course, this can be overdone. If, for example, the flats and fillers are actually wet, it will only be a matter of three or four days before mold will develop where the eggs would come in contact with the flat or the filler, but no damage can come when they merely absorb the moisture which will be in the air of your egg-holding room. Let's watch this little detail. It will do much to preserve the quality of your eggs.

—Utah Poultry Cooperator, October, 1941.

Egg Trading on the New York Exchange

By C. B. RADER

Business Manager, New York Mercantile Exchange

Condensed from a Talk

THE present method of trading on the New York Mercantile Exchange was not just set up by one man or any particular group of men with the idea that it was perfect and the only workable system. It is the outgrowth of a system that was started many years ago out of necessity, and it has been expanded and developed to meet modern conditions. While it is not perfect, we know of no better system for the registration of price.

Seek New Ideas

Please be assured that we are at all times seeking to improve our organization and make it more useful to the trade, and if a better system is discovered or devised, we will be the first to adopt it. From time to time, there has been brought to the attention of the officers and various trade committees many ideas and thoughts. We gratefully and patiently analyze every idea brought to us and once in a while we find one that has merit. A great many of them, however, are not soundly based, and when the touchstone of experience and good business sense is applied, they do not prove workable.

In the early business life of New York, eggs were brought to the city and sold by a few merchants. Each was jealous of the other's business, and the farmer who brought his eggs to the market had no way of knowing what his neighbor was receiving for the same type of product. Likewise, the wholesale merchant was unable to determine whether or not he was paying more than his competitors for the same product.

So through the years there developed a community interest in the marketing of these poultry products, and the years leading up to the early 1870s brought a gradual development in the desire of the merchants in the city, as well as the producers who furnished the market with eggs, for some dependable means of knowing just what eggs were worth to the public, and, further, what kind and sizes of eggs were in the greatest demand.

Organized in 1872

Recognizing the need for a daily meeting place where those engaged in buying and selling eggs could gather at a specified time for the purpose of trading under uniform practices, in 1872 a group of merchants banded together and formed, under special legislative charter from the state of New York, what is now the New York Mercantile Exchange. The objects of the charter, among other things, were, and are, to foster trade and to protect it against unjust and unlawful exactions.

Why Grades Were Needed

My research in this work leads me to believe that there were many misunderstandings as to what section surrounding New York produced the best eggs. Some who hauled their products only a few miles felt that they were entitled to better price on account of their proximity to the consuming center. Others felt that they should receive more for their eggs on account of the size. Still others argued that their eggs were selected and packed better and that fact entitled them to a premium. This all led to establishing fundamental egg grading specifications which have been the basis of trading grades, not only in New York city but generally wherever eggs were sold.

As the association developed, it became necessary to adopt trade ethics and simple rules of trading procedure. These became the foundation on which the modern trading rules of our exchange are based.

Egg trading on the New York Mercantile Exchange is a simple process. We have deliberately kept it so to make it understandable to the producers and others interested in the handling and merchandising of the product.

The egg specifications of the New York Mercantile Exchange fall into two general categories — fresh eggs and refrigerator eggs. Fresh eggs are subdivided into white, brown, and mixed color eggs, while refrigerator eggs are limited to mixed color and white eggs. The grades of fresh eggs under mixed colors are fresh extras, storage packed firsts, fresh graded firsts, current receipts, fresh gathered seconds, fresh mediums, and fresh dirties.

Five Classes of White Eggs

Fresh white eggs are designated as white specials, white standards, white firsts, and white mediums. We also have a designation for Pacific Coast whites, but it is rarely used on the exchange.

Under fresh brown eggs we have the grades specials, standards, firsts, and mediums. Refrigerator mixed color eggs comprise six grades, from refrigerator standards to refrigerator dirties, with refrigerator white eggs encompassing the grades of white specials, standards, firsts, and mediums.

It is, of course, understood that active trading is not carried on in all of these grades during each session of the exchange, as seasonal conditions dominate trading in certain grades.

From "Egg Trading on the New York Mercantile Exchange,"
Presented at Connecticut Egg Marketing School, Storrs, Conn., Sept. 9, 1941

The trading session in spot eggs on the exchange begins at 10:00 a.m. each business day for all grades of eggs. At 10:40 a.m., trading in mixed color eggs ceases, while trading in white and brown eggs runs until 10:50 a.m.

For many years we have used the call system of trading—that is, the trading boards are arranged so that a specific place is devoted to each grade. Hundreds of members gather before the trading boards during the session, and any member is permitted to bid for or offer any of the designated grades of eggs in the trading unit established at that time.

How Eggs are Sold

If a member desires to sell 50 cases of fresh extras, for example, he merely calls out the quantity, grade, and price he asks for them. The call-boy immediately registers this offer on the boards of the exchange and any member may buy or bid for this lot of eggs. A member may change his bid or offer or withdraw completely at any time before a sale is consummated. We do not allow a buyer to pick his seller or a seller to pick his buyer. Priority governs. A member merely expresses his desire to buy or sell on the boards and then takes his turn when the sales are consummated. In 1938 the Federal Surplus Commodity Corp. bought over 650,000 cases of eggs on our boards under this system.

Trading is supervised by the business manager. When a member sells eggs on the board he knows that they must be delivered at a specified time that day. He must either have had the eggs inspected by the exchange inspector before the call, or his delivery papers must contain an order for inspection. Every buyer knows that he must present his check to the exchange at a specified time on the day of sale, for which he will receive title to the eggs purchased.

If either buyer or seller defaults, the exchange steps into the matter and assesses certain penalties for default. If default is on the part of the seller, he is fined 1½ cents per dozen. If it is on the side of the buyer, the exchange sells the delivered eggs to the highest bidder and if any loss is incurred it is collected from the defaulting member. The penalties assessed, with the exception of a small fee retained by the exchange for service charges, are given to the other interested party.

The egg inspectors work directly under the business manager who reports on their activities to the egg committee.

May Appeal Grade Designation

The determination of the egg inspectors is not final—that is to say—any member of the exchange can call an appeal committee to review the work of the inspectors; the decision of the appeal committee being final and binding on all parties. In cases where the seller has a live inspection certificate issued by the exchange and uses this certificate in delivering eggs on a board sale, he has completed his contract unless the buyer decides to appeal within a specified time set in our rules. If the buyer appeals and the exchange inspectors' decision is not upheld, the sale may be cancelled or the seller may make a second delivery.

The trading system that I have outlined is the method used in establishing the public value of eggs in New York city. The exchange itself has no publication showing the daily price current; that function is left to the Urner-Barry Company and other agencies. The exchange provides a meeting place where those interested in the commodities can register their ideas of value.

Futures Market

I have been speaking of spot trading — eggs that were sold and delivered the same day. The exchange also operates another important department—the egg futures market. Trading in futures is the rational development of marketing to its highest pitch. It is the forecasting of future supply and demand, expressed in terms of buying and selling prices.

It is quite difficult to describe in detail in a short period the actual technique of a future market. It is, however, necessary to emphasize that the contract is not a paper contract but definitely provides for the delivery during a stipulated month of a stated quantity of eggs at a certain price. The range of deliverable grades in eggs is sufficiently wide to ensure that the seller can secure the actual commodity necessary to liquidate his contract, and it is sufficiently narrow to insure that the buyer will not be called upon to take delivery of an unmarketable product.

Adjust Differences Daily

During the progress of the contract, differences which become due between buyer and seller must be paid through the clearing house of the exchange in accordance with daily fluctuations in the market. Final settlement is made when the contract is either closed or the commodity tendered for delivery. The intelligent use of future egg contracts is a distinct aid to those who know how to use the protective opportunities offered.

There is nothing perplexing or complicated in egg future trading on our exchange. The method is plain and understandable. To quote the technical terms of the trade might be confusing, so probably a brief illustration should be made.

Let us take a sale in the month of May of a car of refrigerator standards for delivery in the month of October at the price that is being paid in May for eggs to be delivered in October. Assuming that such a sale has been made, the seller has the option of delivering on his contract eggs that have been placed in approved warehouses in the months of March, April, and May as storage packed eggs, or he may deliver a car of fresh eggs to complete his contract. It is understood, of course, that if he delivers storage packed eggs, they would have to grade refrigerator standards at time of delivery.

Methods of Closing Contract

Our rules also provide that higher or lower grades of eggs may be delivered with a price adjustment. However, if the seller does not desire to deliver eggs by this method, he may, through the medium of the futures market, buy back his contract and close out his transaction by offset. The reverse is true on a future purchase transaction.

Many uses are made of the futures market by those in the egg industry who have studied its application. Its primary use is for the minimizing of loss against unexpected price fluctuations. It is not a bulwark against loss, nor does it guarantee a profit to those who use it, but it is a method employed by many dealers in cash commodities to protect themselves against great losses which might result from price movements that would cause loss if the protection of the future market had not been used.

The term "Hedging" has become one of the common words of the egg industry, and I think we should devote some time to this method of trading. Hedging is effected by making with cash purchases or sales practically simultaneous future transactions on the opposite side of the market. That is, a future purchase would offset a cash sale or a future sale would offset a cash purchase. This is done on the assumption that the price of a fresh and a future commodity will move up and down together, and that as the trades are in opposite sides of the market, the decline or advance of either will be compensated by a corresponding fluctuation in the other. Fresh or spot prices and the prices of contracts for future trades are inter-dependent and, under normal conditions, fluctuate together. This theoretical harmony may be disturbed to a greater or lesser degree at times. Nevertheless, they actually do move together with considerable regularity.

Hedging in Practice

The future market is most commonly used for hedging by those who store eggs in the spring for delivery in the fall. These traders accumulate eggs in carload lots and place them in approved warehouses within the delivery area of the market in which the trade is consummated. They then sell in the future market a quantity equal to that of the eggs stored.

If the market declines below the price they paid for the eggs, they have a profit in their future transaction. If the sale on the future board shows them a profit, they may close out the transaction, procure their profit, and apply it against the cost of the eggs purchased—which offsets any loss they might sustain in selling the actual eggs, especially if the spot price has declined with the future market.

Now let us take the same example and analyze what happens if the future market advances after they have sold the eggs on the future board. If the market advances above the price at which the future sale was made, they have a loss in the future sale and a profit in the actual sale of the spot eggs, if the spot market advanced in line with the futures.

Losses Minimized by Hedging

Some take the viewpoint that hedging restricts their profits. That is, if they had purchased eggs and had not hedged them, and if the market advanced, they would make a greater profit than if they had sold them on the future board as a hedge.

This is undoubtedly true, but we must further answer this question by taking the opposite side. What if the market had declined and they had not hedged the eggs? They would have had a loss. To my mind, a person who is in the business of storing eggs and who doesn't take advantage of the price insurance available through the use of the futures market by hedging is taking a greater chance than a man who does hedge.

A sound business man would not think of conducting his business without having adequate fire insurance on his inventory and business fixtures. He knows that, in case of fire, if he doesn't carry insurance he is liable to have a total loss. So he protects himself with a modern fire insurance policy. The same is true of hedging through the futures market. It cannot guarantee all loss, but it prevents total loss.

Other Uses of Futures

There are, of course, many ways that the futures market can be used to advantage, if one will make a study of how it can be fitted into his business. It is used for hedging purposes by practically every branch of the industry and it is a modern addition to egg marketing. Its practical use should be thoroughly studied.

The egg receivers in New York city are experts in finding the proper outlets for the various types, grades, and sizes of eggs they receive. They work diligently and honestly to better serve both the producer and the consumer. They maintain expensive organizations and adequate equipment to keep the flow of merchandise moving along with the least possible hindrance.

In the five boroughs of greater New York, there are 52,161 food stores, practically all of which offer and sell to the public daily all grades of eggs and dressed poultry.

What Egg Merchants Do

The egg merchant in New York is familiar with the various types of retailing and jobbing outlets. He is quick to contact them to offer his particular kind of merchandise. He is "on the alert" to see that the eggs he receives will be the first offered to a discriminating clientele. He maintains spacious and expensive storage facilities, floor displays, and mobile equipment that rushes the eggs to the retail and jobbing buyers. He employs efficient and expert people in the receiving, sorting, and grading of the eggs that come to him.

He is wide awake to the gossip of the trade and the things that go to make for success in service to his shippers and to his buyers. Further, the egg merchant is compelled to pay what are believed to be the highest wages for comparable labor in our country.

The New York egg merchants fully realize that if they are to prosper and have the good-will of those upon whom they are dependent for a livelihood, they must give the best possible service on a competitive basis.

Conversion Factors for Eggs

Conversion Factors for Eggs

Products	Yield of liquid eggs from 30 dozen shell eggs	Yield of 1 dozen shell eggs		Requirem'ts for 1 pound of dried egg products		Yield of dried product from:	
		Liquid eggs	Dried eggs	Liquid eggs	Shell eggs	100 pounds of liquid eggs	30 dozen shell eggs
	Pounds	Pounds	Pounds	Pounds	Dozens	Pounds	Pounds
Whole Eggs*	35.00	1.1667	0.3268	3.57	3.06	28.01	9.804
Albumen	19.25	0.6417	0.0879	7.30	11.38	13.70	2.637
Yolk	15.75	0.5250	0.2386	2.20	4.19	45.45	7.158

* Shell egg consists of 45 per cent yolk and 55 per cent albumen. Dried whole egg consists of 73.1 per cent yolk and 26.9 per cent albumen.

The Egg-Drying Industry in the United States, Agricultural Adjustment Administration.

—Poultry and Egg Situation, August, 1941.

IN BALI only men may own and tend cows and ducks, whilst only women may own and tend chickens and pigs.

—South African Poultry, Pigeon and Bird Magazine, August, 1941.

Turkey Breeder Starts R. O. P. Program

By M. C. SMALL

Condensed from Turkey World

ALTHOUGH the term R.O.P., meaning Record of Performance, has been used widely in connection with the chicken business, few people have ever heard it applied to turkeys. However, on Rosmoore Farm, in New Hampshire, Peter Crafts is carrying on an extensive R.O.P. breeding program with White Holland turkeys.

Building Up the Flock

About 100 market birds were raised the first season, 300 the next, and so on up until a maximum of about 4,000 was reached. Ten breeders were kept the first year, and this has increased to 500.

In time, the old farm buildings have been repaired and new ones constructed. Most of the breeders are now housed in a 40 by 60-foot barn, which provides four floors for turkeys. A few breeders were housed in temporary quarters this year. A new breeder house to be used exclusively for pedigree pens is under construction and is almost completed. This house is 18 by 100-feet, two stories, and will provide 20 pedigree pens. There are eight pens in the breeder barn. Around 50 birds are placed in each pen.

All of the 500 breeders are trapnested. Production and hatchability records are kept on every bird. In this manner, the best birds are discovered during their first year of production and can be used in the pedigree pens the following years. Around 100 of the best birds are in special pedigree pens. By the use of family records, as well as records of individual egg production, hatchability and other characteristics, special matings are made to intensify desirable qualities. All the toms used for the entire flock are produced in these special pedigree pens. From this description, one can see readily that Crafts has one of the most extensive and intensive breeding programs of any breeder in the country.

Pullorum Tests Stock

All breeders are tested for pullorum disease by the state, and because of the fact that there have been no reactors, Rosmoore Farm has had a "pullorum clean" rating for many years.

New Hampshire has been one of the leading states in National Improvement Plan work with chickens, and leaders in this work in the state saw no reason why the same type of work could not be done with turkeys. Two breeders have enrolled for the R.O.P. breeding phase—Rosmoore Farm, which is the farm operated by Crafts, and Ridgehaven Turkey Farm.

New Hampshire R.O.P. Standards

A brief outline of the New Hampshire R.O.P. standards for turkeys is as follows.

1. Freedom from Pullorum Disease. Breeders to be eligible for R.O.P. work must have New Hampshire pullorum "clean" or "passed" rating.

2. All turkeys must conform with the American Standard of Perfection as to their respective breeds.

3. To be granted a certificate, an R.O.P. turkey must have produced a minimum of 75 eggs in a six-month period.

4. Egg weight for qualification is given on basis of actual average weight. These weights are taken for three consecutive days each month starting 45 days after production of the first egg.

5. Body weights are taken by the breeder and authenticated by the inspector.

6. Breeders are charged for turkeys having 45 days of production, and include all turkeys under production by May 1.

7. (a) Upon qualification for R.O.P., the female is banded by the inspector with a proper band bearing the symbols of the year, New Hampshire Record of Performance, and a respective number.

(b) The approved R.O.P. tom is banded with a band bearing the symbols of the year, New Hampshire Record of Performance, Approved, and a respective number.

Crafts had a total of 452 breeders listed for the 1939-40 season, 279 of which were entered in R.O.P. Of these, 84 met the rigid standards to qualify for R.O.P. Fifty-four birds came in the classification of those producing 75 to 79 eggs during the 180 days; 26 produced 100 to 124 eggs; and 4 produced 125 or more eggs. The average egg weight for qualifying birds was 3.03 ounces.

Personal Program Beyond R.O.P.

When asked what he thought of the R.O.P. breeding program, Crafts stated, "For the most part, my breeding program is far advanced beyond the standards set up by R.O.P.

"High egg production is only one phase in a breeding program and is important only as long as high hatchability from birds of desirable meat type accompanies it. Our hatching season runs longer than the six months required for R.O.P. qualification and this season we have a goodly number of birds which produced 100 or more poults.

"However, R.O.P. work provides an official rating for my birds and for my hatchery. People everywhere are somewhat familiar with R.O.P. ratings and know that it is not a rating given by me but by the government-supervised New Hampshire R.O.P. Association and the University of New Hampshire."

Operates a Hatchery

In order to carry on his pedigree hatching work and provide poults for sale, Crafts operates a modern hatchery with the capacity to produce about 1,000 poults per week.

After poults are hatched and banded, they are brooded in units of 125. Crafts states that he could place more in each brood, but it seems to be false economy to crowd them.

As soon as possible, the poults are moved from the brooders into what Crafts calls "in-between confinement shelters." These are 12 by 24-foot structures with a wire floor throughout. One end is covered and the other serves the purpose of a sun porch.

Crafts first devised these structures to handle some January-hatched turkeys that could not be moved to range because of the severity of the weather. The brooder houses were needed for another brood and a couple of these houses were constructed to make brooder houses available. The arrangement worked out so well that several more of these "in-between" shelters have been constructed. The last brood each season is raised to maturity in confinement in them.

Other growing birds are placed on the New Hampshire hills, where range land suitable for turkeys is one of the things that is plentiful.

When Crafts first started his turkey business, his market birds were sold retail in Manchester, a nearby city of 76,000 population. At the present time, however, most of his market birds are sold through one large store. The birds are advertised and marketed under the Rosmoore Farm trade name and each bird carries a metal Rosmoore Farm wing badge.

Hatches from January to August

In order to supply the demand for market birds, turkeys are hatched continuously from January to August. During the past season, Crafts experimented a bit with freezing full-dressed birds. These birds were sealed in a new type rubber covering. The experiment turned out so successfully that he is planning to freeze a larger quantity this year.

❛❛ OF ALL the foods known to man, eggs are less likely to convey disease or contain harmful properties than any other food of animal origin.

—South African Poultry, Pigeon and Bird Magazine, August, 1941.

POULTRY RESEARCH

Temperatures Affect Growing Pullets

The University of Chicago concludes that pullets grown in a cold environment have a larger heart and a more compact and shorter body than do pullets raised at higher temperatures.

Pullets were reared at temperatures of 43 and 74 degrees Fahrenheit from the third to sixth month. Birds raised in the higher temperature had a slightly longer body, longer shanks, and longer tails. This work with chickens confirms earlier observations that "The heart of warm blooded animals from colder regions is proportionally heavier than related forms from warmer climates." To a lesser extent the conclusion that "Animals from northern climates tend to be larger in size and have less surface in proportion to their weight than their southern relatives," is supported.

—H. L. Kemster, American Poultry Journal, November, 1941.

Marketing Roasting Chickens

At the Dominion Experimental Farms, Ottawa, Canada, a study was made of three different methods of marketing roasting chickens. These were crate fattening, caponizing, and killing right off the range. (Scientific Agriculture, 21:711).

Crate fattening was most efficient, and produced very high quality stock. The return over feed cost was 59 cents a head. Feed cost per pound of gain was 7 cents.

Caponizing was second in efficiency. Return over feed cost was 48 cents a head. Feed cost per pound of gain was 23 cents.

Killing of cockerels right off the range was the least efficient method. Gains were low, and the quality of the dressed carcasses was inferior. Return over feed cost was 35 cents a head, and feed cost per pound of gain was 18 cents.

—Poultry Tribune, November, 1941.

Coconut Cake Meal as Bran Substitute

Coconut cake meal (copra) gave as good production, maintained hens in equally good body condition, and resulted in as high an income from the sale of eggs as did bran on tests carried on by H. Temperton and F. J. Dudley and reported in the Harper Adams Utility Poultry Journal (Newport, Shropshire, England) for August, 1941. As the test involved only 38 birds on each ration, the results are not given as a conclusion, but the investigators comment that the coconut cake meal probably could be used as a substitute, should bran become unobtainable because of the war.

War-Time Substitutes in Poultry Rations

As war-time substitutes for the usual feedstuffs, potato meal and tapioca meal at levels of 20 per cent, and town waste at a level of 30 per cent, are suitable for the rearing of young stock, reports the Harper Adams Utility Poultry Journal (Newport, Shropshire, England), for July, 1941. Investigators Alice M. McMilland and F. J. Dudley state that feeding the substitutes at levels of 40 and 50 per cent was not satisfactory, although no discernable harmful effects were noted.

Factor Inhibiting Pigmentation Found

A factor present in such common poultry feedstuffs as meat scraps, fish meal, and soybean oil meal which retards the deposition of yellow pigment in the shanks of growing chicks is reported by T. H. Culton and H. R. Bird of the department of poultry husbandry, University of Maryland, in Poultry Science (Vol. 20, No. 5).

Factors Influencing Pigmentation

Shank color in the growing chicken is influenced by breed, the quantity of xanthophyll pigment in the diet, and the quantity of a pigmentation-suppressing factor in the diet, report J. C. Hammond and H. M. Harshaw of the U. S. Department of Agriculture's Beltsville Research Center in Poultry Science (Vol. 20, No. 5). The pigmentation-suppressing factor was found in cod liver oil, sardine oil, and fortified cod liver oil, but in no case would the factor have been found in levels high enough to seriously hinder pigmentation under normal feeding practices. In the tests the oils were fed at levels several times that needed for protection against vitamin D deficiency.

Vitamin D Stability

The stability of vitamin D in the poultry ration is influenced by the ingredient which is used as a carrier of the vitamin D material, reported J. C. Fritz, W. F. Archbold, and D. K. Baker, Borden's Research Laboratory, Elgin, Ill., at the 33rd Annual Meeting of the Poultry Science Association.

Destruction of vitamin D was rapid when some milk products, such as whey, were used as a vehicle for the fish oil, while soybean oilmeal rendered vitamin D of the same fish oil much more stable. The authors did not explore the stability of vitamin D when admixed with other cereals, notably pulverized oats and wheat products, which other investigators have shown to have stabilizing properties.

The investigators named above attribute the destruction to surface oxidation resulting from contact with the air, because a rapid loss of vitamin D was observed when the fish oil was mixed with such inert material as sand. Of course, this assumption does not preclude the well-recognized fact that some cereals possess anti-oxidizing properties which inhibit or retard the loss of vitamin D.

—Carl H. Schroeder, Everybodys Poultry Magazine, November, 1941.

Gizzard Erosion Preventive in Liquid Milk

The presence of an unstable substance in cow's milk which acts like cholic acid in retarding gizzard erosion is reported by H. J. Almquist, E. Mecchi, and F. H. Kratzer of the University of California in the Proceedings of the Society of Experimental Biology and Medicine, 1941. No activity was observed when dried milk products such as whole milk, skimmilk, buttermilk, and whey were fed, but the liquid product showed definite gizzard-erosion preventive properties.

Gizzard Erosion

Only 28 (3.9 per cent) out of 715 gizzards of day old chicks were found to be normal in tests carried out by T. B. Charles, J. H. Gillespie, R. C. Durgin, and C. L. Martin of the New Hampshire Agricultural Experiment Station, according to their report in Poultry Science (Vol. 20, No. 5). No significant relationship was found between incidence of gizzard erosion and sex. It was concluded that gizzard erosions are widespread and represent the usual condition under a wide variation in environment.

Avian Encephalomyelitis

Results of recent investigations suggest that avian encephalomyelitis (epidemic tremor) follows an egg-borne cycle, report Erwin Jungherr and Edwin L. Minard in the Journal of the American Veterinary Medical Association, September, 1941. Persistence of the virus in visceral, especially gonadal, tissues of certain adult birds, and its elimination by way of the genital and digestive tracts has been demonstrated.

Aspergillosis Infection in Adult Chickens

Aspergillosis (Aspergillus fumigatus infection) in adult chickens is reported by H. C. Gauger of the North Carolina Agricultural Experiment Station in Poultry Science (Vol. 20, No. 5). The symptoms shown by affected birds were quite similar to those shown by birds that have laryngotracheitis, with autopsy revealing respiratory and kidney lesions. Abnormal mortality did not occur, but egg production was temporarily lowered.

Curly-Toe Paralysis Prevention

Prevention of curly-toe paralysis requires a higher intake of riboflavin than is necessary to obtain optimum growth, reported R. M. Bethke and P. R. Record of the Ohio Agricultural Experiment Station at the 33rd Annual Meeting of the Poultry Science Association.

They also reported that studies dealing with the comparative riboflavin requirements of Leghorns vs. crossbreds showed no noteworthy differences in the amount of flavin needed.

—Carl H. Schroeder, Everybodys Poultry Magazine, November, 1941.

We Licked the Mice

We spent a good many years fighting mice in our central feed warehouse with every method known to science. We were able to rat-proof the room a number of years back with a Rube Goldberg invention that automatically raised and lowered the stairway leading to the feed room. Rats had been using it as a means of entrance and exit, principally entrance. But the mice proved a more difficult problem.

One time we were presented with a bill for $30 by a rodent exterminating company and all they could produce was 15 dead mice. They settled for half the bill, or just one dollar a mouse (as much as we receive for a pedigreed chick, and the mice didn't even have wing-bands.)

But we took matters into our own hands this spring and built a tight metal shell, or feed room within a room, in the warehouse. This has worked like a charm. So far, no mice have gotten in, although there are a few hungry looking ones on the outside.

Rats and mice can be eliminated from any poultry farm by keeping the premises clean, so there are no places to breed, and by proper building construction.

—Dryden Poultry Bulletin, July, 1941.

❛❛ A WOVEN wire netting section before the nests, or a platform covered in small grit sand or rice hulls, cleans the birds' feet as they pass to the nests. This means cleaner eggs, less egg cleaning, and higher grade eggs.

—South African Poultry, Pigeon and Bird Magazine, September, 1941.

❛❛ AN EGG without a yolk—an oddity so rare as to be unheard of among local hatcherymen—was purchased by Mrs. V. G. D'Assisi at a grocery store in Spokane, Washington.

—National Barred Rock Journal, September, 1941.

Feathers for Flies

By J. E. WILLMARTH

Reprinted from American Poultry Journal

PERHAPS few poultrymen realize the opportunity that is offered to make some extra money from the sale of certain kinds of feathers to fly tyer supply houses, to be made into artificial fish flies and lures. There is a growing demand for such feathers.

Feathers used most are cock neck hackles, goose and duck wing flight feathers, Bronze turkey tail feathers, and barred side and breast feathers from Rouen drakes. All these, except the last mentioned, are readily obtainable at established feather dealers, in bulk. However, the percentage of such feathers that fly tyers can use is very small; they prefer to buy only those they can use.

Probably the most important feather for the manufacture of lures is the hackle feather. These feathers should be perfect, fully grown, and rather narrow in proportion to the length. Such feathers are obtained from full grown cock birds, and grow on the back of the neck, from about ¾ inch below the juncture of the comb with the head and for a space of about 1½ inch below that point. Such feathers should measure, when plucked from the skin, from 1 inch to 2½ inches long overall, and the side fibres from ¼ inch to ⅜ inch long from quill of feather to end of fibre.

Certain Colors in Demand

Certain colors selected with extra care command an extra premium price. Bright red or bay colored hackles, such as are found on light colored Reds, are most used, with white next. But as these two colors are also the most plentiful on the markets, the rarer colors bring a higher price. Some of these rarer colors are black, buff (called ginger), grizzly (Plymouth Rock), brown or red with black stripe down center such as come from partridge breeds (called furnace or brown badger), silver (white with black stripe down center) as from Silver Wyandottes, etc. (called badger or list hackles), and blue due (Blue Andalusian). The last two colors named are the most valuable.

Game cocks have the best quality of hackles, and breeders of these can obtain a very good price, if the feathers are carefully selected.

Another feather that is rather scarce is the gray or slate colored flight feathers from dark colored duck wings. These are the first 6 to 10 flight feathers in the wing and are generally sold in matched pairs. White duck and gray goose flight feathers, Bronze turkey tail feathers, and some guinea plumage are also used by fly tyers.

The state of New York recently amended its conservation laws to prohibit the sale of game bird plumage beyond what the dealer had on hand in May, 1941. After 1947 it will be illegal to sell any game plumage. However, dealers' stocks of the plumage most in demand will no doubt be exhausted within the next year or so. As New York city is the feather headquarters for this type of plumage in the United States, this law will affect the whole country.

This law will compel fly tyers to use the plumage of domestic birds as far as possible. The New York law specifies domestic plumage as follows: domestic chickens, ducks, geese, turkeys, pigeons, guineas, ring neck pheasants, ostriches, and peafowl. Naturally, the ostrich is rather beyond the average poultry keeper, and pheasant, guinea, and pigeon plumage is not used to any extent. However, peacock raisers can probably make some money by taking advantage of the demand for tail feathers.

Mallard duck plumage is much used by fly tyers, but since it will be illegal for dealers to buy additional quantities of this plumage after their present stocks are exhausted, the Rouen duck is going to "come into its own," as its plumage is similar to that of the wild mallard.

The feathers most used are the finely-barred feathers from the breast and sides of the Rouen drake. This plumage is now bringing a high price and will no doubt go much higher when the wild plumage is exhausted. The gray flight feathers from both duck and drake are also used. The purchaser of Rouen, peacock, and pheasant plumage will probably require the seller to furnish an affidavit that the feathers are all from domestically raised stock.

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, November, 1941)

The Turkey Herder

Genius has been defined as "an infinite capacity for taking pains." In his way, humble though it may seem, that same description fits well the good turkey producer. And by turkey producer we are not referring to an absentee owner, a manager, or a landlord, but that man who is out with the birds, in the brooder house and on the range, the man who does the work.

To be a good turkey herder, one must, first of all, like turkeys. And liking them, he must be prepared to spend long hours with them. In the brooder house, the work is more than feeding, watering, and cleaning. In every flock of poults there are some that need working with. Perhaps some start eating slowly, yet if these same birds are babied a bit and pampered a little, they make just as good turkeys as any of them. Or there may be a spraddle legged bird or two to be watered and nursed until mounting strength puts them on a par with the rest.

The good herder must know his poults, live with them, and think for them. Feeding is not merely cleaning and filling the troughs; it is seeing that every poult is eating. Every brooder house should be equipped with a hospital pen, where the weak, the ailing, and the temporarily crippled will have a chance to recuperate and grow. Perhaps a bird has over-eaten and is slightly "off." A flush will cure him, yet it is not necessary to flush the entire flock. That is where the observation of the herder comes in.

Or perhaps a few birds come down with dermatitis. Nothing serious to the flock as a whole, or even serious to these ailing birds, if noticed in time. A week or two on skim milk and fresh greens will put them back on a par with the balance of the flock — but if they are left alone with the stronger birds, they grow into runts and culls.

A good herder can make two weeks difference in the time your birds will mature after they are on range. He can take the birds out from camp in a different direction each day for new grass, new bugs, and fresh ground. He can move the feeders into the shade, so the birds will eat even on a hot afternoon; he can feed often rather than heavily.

A good herder will have a tame flock. He handles his birds often and, craving human companionship as do few other types of farm animals, the birds will respond to every advance. Tame birds are not so apt to stampede at night, to worry and fret at strange sights or sounds in the day. Just as quietness is essential around any cattle or sheep feeding lot, so with turkeys the unexcitable birds finish off first.

Every time a herder goes around his feeders and does nothing more than stir up the feed a bit, some of the turkeys will follow him and eat. Turkeys do not gorge as do chickens; they eat not so much at a time, but often. Frequent feedings and being with the birds on the range just as a shepherd is with his sheep, make for better, quieter, faster growing turkeys.

The old Scotch proverb, "The eye of the master fatteneth his cattle," has its application with turkeys just as well as with Shorthorns and Herefords.

—Norbest Turkey News.

Why Sears and Ward Sell Baby Chicks

By H. K. MARCOTT

Condensed from Hatchery Tribune

ALTHOUGH there are no definite figures to prove our point, we believe that the two major mail order companies, Montgomery Ward and Sears, Roebuck & Company, combined probably form the biggest customer of the hatchery industry today.

Sears, Roebuck & Company was the first large mail order house to sell baby chicks. They began in 1929, when it became apparent to them that the use of small incubators for home hatching was on the decline. Since they were selling several million dollars worth of small home incubators each year, it was decided that their future service to the poultry raiser rested upon their ability to supply him with good baby chicks at a fair price.

Ward Started Selling

Montgomery Ward first merchandised chicks in 1931, but due to the fact that catalog prices must be set up several months in advance, Wards did not list chicks in their general catalog until 1934. Chick merchandising was started as an additional customer service and as an effort to stimulate the sale of poultry equipment, which always has been a strong item in mail order sales, H. C. Springer, Ward's chick buyer, informed us. It wasn't until 1935 that they were first offered for sale in Ward's retail stores.

Do Not Own Hatcheries

Neither Montgomery Ward nor Sears, Roebuck own hatcheries. Chicks are purchased from numerous independent hatcherymen located in various sections of the country. By distributing their business in this manner, the mail order houses believe they can better serve their customers, the hatchery industry, and the flock-owners producing hatching eggs.

"The hatchery industry always has regarded the mail order house with some antagonism as a competitor," Springer, at Montgomery Ward, told us. "In reality, we are not competitors of the industry in any way, as we produce no chicks," he said. "The only concern to the hatchery industry is whether we advertise and merchandise chicks in a creditable manner and maintain prices that are reasonable in comparison with those of the industry. We believe that Wards have done that, and a comparison of our prices for

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Hatchery Tribune, October, 1941)

the past several years with those offered by reputable hatcherymen will show them to have been in line or higher than the average price asked by the hatcheryman."

Speaking on this same subject, Lowell A. Cray, chick buyer at Sears, said, "We are customers of the industry rather than its competitors."

Handle National Plan Chicks

All Ward and Sears chicks are purchased from hatcheries operating under the National Poultry Improvement Plan in the U. S. Approved breeding stage or higher, we were told. "We are exceptionally careful to see that all purchases made through our stores are confined to hatcheries authorized from this office," Springer told us. "Our stores send orders for these chicks through to the hatchery, using prices and a list of sources provided by the buying office."

As a protection for their customers, all Ward chicks that are shipped direct from the hatchery bear the National Poultry Improvement label, but chicks sold in Ward stores, although purchased from the same hatcheries, do not carry this label unless they are shipped direct to the customer.

"We do this because of the fact that chicks shipped to the store are put in batteries and are not always delivered to the customer in the original carton," Springer explained. "However, the chicks sold by Ward stores are the same quality chicks, produced by the same hatcheries, and handled with the same care as those sold by mail. The same thing applies to our warranty on replacement and all other rules for the protection of customers buying chicks from Ward's."

The successful Sears stores have found that large volume can be secured only by carrying chicks in battery brooders in the store. However, many stores, because of lack of space, do not stock baby chicks, but simply take orders for shipment direct from the hatchery to the customer.

Order Size Varies

Cray, the Sears chick buyer, went on to say, "The average order size varies considerably from year to year, depending upon geographical location, time of year, and whether sold through mail order or retail store channels. In the Midwest, the average order calls for about 200 chicks. In the south, the orders are smaller, and on either coast, the orders are larger."

Because most of Sears retail stores are located in large industrial cities, many of their chick customers are factory and office workers, raising just a few chickens to supply meat and eggs for table use. For this reason, the average retail store sale is smaller, and, Cray added, "I am sorry to say, fewer buy the better grade of chicks. However, we also have found that our retail store chick sales hold up well during times of depression, when the industrial worker turns to poultry raising to supplement his reduced factory pay check. Through our retail stores, the hatchery industry reaches a class of customers whose volume might otherwise be lost or difficult to secure by other means."

Both Springer and Cray stressed the lack of a particular standard by which chick quality could be determined, and this is the reason they give for adopting the policy of handling only National Plan chicks.

Quality Is Improving

They also agreed that there is room for considerable improvement in the general quality of chicks. However, they pointed out, there is a very noticeable trend by hatcherymen to accomplish this through stricter testing requirements, the use of pedigree male birds, and more careful culling for uniformity and general quality.

Realizing that unless a customer is successful, he is not likely to continue as a customer very long, Montgomery Ward recently inaugurated a plan which guarantees chick customers against any loss up to 90 per cent of the number of chicks purchased during the first 14 days after delivery. Springer remarked that this plan has caused a great deal of controversy among hatcherymen as to whether it was a wise idea or not, but he believes that the confidence such a policy gives the purchaser offsets any loss incurred by the seller, and that a great part of such loss is within the control of the hatcheryman.

Most Complaints with Small Lots

Sears guarantees provide for 100 per cent live delivery, and on the better grades, replacement at half prices on losses over 5 per cent during the first 14 days, excluding losses due to mismanagement. Cray says that hatcheries supplying chicks back up this guarantee, and he has found that by carefully investigating the hatcheries in advance and not shipping great distances, complaints can be kept to a minimum. "Our experience indicates that the most unreasonable complaints are due to misunderstanding on the part of the customer rather than lack of sincerity or desire to get something for nothing." Cray remarked. "Our worst offenders are those customers who order small lots of chicks and attempt to raise them without proper facilities."

An analysis of Ward complaints shows that about half are due to delays of the shipping or improper handling of the order, which, Springer says, "is a condition entirely within the control of the hatcheryman. We believe that if hatcheries would operate in such a way as to make prompt and accurate shipment, and, in addition, assure the purchaser of protection during the starting period, he would do away almost entirely with the habit many chick customers have of switching from one source to another each year."

Springer believes that the greatest increase in chick prices will occur this coming season in the lower grade chicks, as the egg cost and actual cost of production is not a great deal different from that of higher quality chicks.

Should Sell Quality Chicks

"There has never been a time in the past decade when there was a better opportunity to sell high quality chicks, and we believe any loss of sales due to increase in price of the lower quality chicks will be offset by the increased percentage of sales in the better grades," Springer predicted.

In reply to the question, "What do you think of the future of the hatchery industry?" we received this observation from Springer, which bears careful reading and much though by all baby chick producers.

"Here and there a member of the industry has settled to his own satisfaction what his place in the industry should be, and is quietly and successfully pursuing that course. It may be that he has decided to build up a reputable local business based on uniform good quality chicks and a reputation for fair prices and dealings. In that case, he likely puts out a reasonable number of chicks at a price which gives him a very fair profit.

"In contrast to him," Springer went on to say, "there is here and there a man who is primarily interested in large production and wholesale outlets, which will enable him to take a small profit on each chick, but his large gross sales will bring him a substantial income.

"The majority, however, still are operating in three classifications: First, they are manufacturers, as are all hatcherymen; second, they are retailers, as far as they can be; and, finally, they are wholesalers, at least, in that their surplus chicks go through some dealer outlet.

Wholesale or Retail?

"It is very easy to see what a struggle must go on in each man's mind in a year such as the last one, when his wholesale account cost him a possible profit of $2 per 100 on every chick he shipped, and which he might have otherwise retailed. It seems to us that eventually the majority of the hatcherymen will shake down into either a retailer or a wholesaler class, each of which has a place, and each of which can make a reasonable return on his effort and investment."

Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

Condensed from Everybodys Poultry Magazine

Nov. 1—I got my bank statement this morning when I went in to deposit the egg check. Ever since I made a $600 error in my check stubs, I have been very careful to balance with the bank on the first day of the month.

Nov. 2 — We housed about 400 pullets today while Donnie was home. A few drops of vaccine were wasted, but it couldn't be helped, for we couldn't catch any more stock. Late this afternoon, the birds just wouldn't go in the houses for love, money, or anything. I suppose they got onto what we were doing; when a bird went in a house, she didn't come out again. But by Monday I think they will have forgotten all about it and we will be able to round up more of them.

Nov. 4—I have always maintained that a bird has more brains than she is given credit for having. For several weeks, a hen on the third floor has made a habit of jumping on the corn bucket as soon as I entered the door. She would sit there and eat until I reached the far end of the building. I fooled her yesterday when I carried the bucket in the crook of my elbow. Today she outwitted me. She was sitting on the perch waiting for me to come in the door. Then she flew down on the bucket and rode blithely along, hogging off the corn as she rode. I just didn't have the heart to push her off; not a bird that has that much intelligence.

Nov. 6—Pullets pick queer places to lay. I found three eggs in one of the feeders and several scattered ones on the perch screens. So far this fall, there haven't been many on the floor. I can see at a casual glance that I am going to have to patrol the houses more frequently. If I can just get them started to laying in the nests, then everything will be hunky-dory.

Nov. 7—A coop of cockerels that had been roosting in the trees went to the auction this morning. They gave me the slip last July when I was selling broilers. For the past few days we have been picking them up occasionally and holding them in the feeding battery. There were 12 in all, and this just made a coopfull. They were classified as stags, which means that the price is going to be way down low.

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(Everybodys Poultry Magazine, November, 1941)

Nov. 9—Donnie spent most of the day out on the range catching pullets. Every so often, Harold would drive out with the truck and bring in a few coops. These would be vaccinated, "pilled," and distributed in the laying houses. I don't like this idea of holding birds in coops any longer than necessary. Today they were held in coops just the minimum of time. Some of the birds couldn't have been held much over 15 minutes.

Nov. 13—It is a new wrinkle in disposing of chickens. Quite a novelty I would say offhand, to take them out on the highway to be hit by an automobile. I had to make a trip down the road so took the car out of the garage not knowing that a hen was roosting somewhere on it. Glancing in the mirror, I saw a hen standing in the road in apparently a confused state of mind.

There were a few feathers drifting lazily around her head in a halo fashion, so she must have hit the pavement with quite a wallop. I stopped the car with the intention of going back and rescuing her, but it was of no avail. Before I could get out of the door, another car had come along and mowed her down.

Nov. 14—Donnie and I slugged a couple of rats in the west house feed room after he came home from school. I have known for some time that there was a rat sticking around.

I punched under one end of the bin and Donnie was at the other end, down on his knees with a broom handle just off of the floor. This stance allows a broadside blow to be struck, which is quite effective when the proper connection is made.

Nov. 16—We are still picking up a few birds on the range, but they are getting just about as hard to get as hen's teeth. The ones that roost in the pine and spruce trees are the hardest to catch. It is well nigh impossible to catch them roosting because they can't be found.

Nov. 19—One of the water fountains in the north house has been giving trouble for some time. The tank or trough has started to pit or rust in spots. I soldered it a few weeks ago, and, while that stopped those particular leaks, it didn't prevent other pits from forming. Patience might be a virtue, but there is a limit to the amount of patience one can maintain. When water begins to run out of the tank and wet the floor, it is high time something was done. It was done this afternoon; a new tank was installed. Now my troubles should be over for about 18 months, at least with this particular tank.

Nov. 20—What I can't understand is why anyone would want to drive a six-penny nail in the end of an egg case. The back of my hand is scratched from one side to the other as a result. I was removing the flats and fillers and didn't see the nail until too late.

I could have been seriously hurt. Blood poisoning might have set in on me. It might have killed me. I am extremely lucky, I should say fortunate, that I am still in the land of the living. Extra long tacks or roofing nails are often used to attach shipping cards to cases by some producers. No thought at all is given to the person who is to remove the eggs or empty flats and fillers. It is a wonder that the boys at the auction don't get seriously hurt.

Nov. 21—Tomorrow morning we are going to be sold out of cracked eggs, for the time being, at least. I have just finished cleaning up all marketable cracked stock. They are ready to go to town with the rest of the eggs. Those that won't stand transporting will be used at home.

Nov. 22—Pullet production is on the up and up, and the size is increasing in proportion to the production. Large eggs, 23 ounces and up, are getting to be in the majority. One nice thing about having a few baskets of hen's eggs at this time of the year is the fact that the case weight can be raised, or at least maintained.

Nov. 23—I lost a big cockerel by bleeding to death. These spunky fellows that like to fight really take their lives in their hands, so to speak, when they do. A torn comb will cause an awful lot of blood to be lost. If they lose too much, they are gone, unless a transfusion can be made. So far, I haven't been able to give a transfusion.

A few days ago there was a bird that lost so much blood in a battle that his comb and wattles were a pale pink. I kept him in the basement by the furnace until he got some more corpuscles in his veins. A half bled chicken will die quick on a cold night if left out doors. They linger longer if kept in a warm room.

Nov. 26 — Harold Sidle, the egg inspector, told me that egg size is rapidly increasing, according to the auction tabulations. I know that my pullets are laying larger eggs. It really burns me up, in a way, to have my stock follow the common horde.

Nov. 27—In spite of everything I can do, there are a few birds that are bound and determined to lay everywhere but in the nest. It is as impossible to convince them that the nest is the safest place to lay as it is to change a woman's mind. I picked one pullet out of the mash hopper three times and put her in a different nest each time. All she did was to glare at me with a haughty, defiant look in her eye, and get back in the mash hopper. I know that way deep down underneath, Judy O'Grady and the Colonel's lady are sisters under the skin. I got an egg out of the mash hopper.

Nov. 28 — I never saw so many double eggs in all my life. At the noon gathering there were four in the east house. The total for the day was an even dozen.

For some reason or other, it is easy to lay them back each day until there is quite an accumulation. I am going to sell the whole works tomorrow, wipe the slate clean, and start all over again. Then in a few days I'll be in the same boat that I am now. On the other hand, the heavier the production, the greater the number of double-yolk eggs. If I were not getting very many eggs, there wouldn't be many doubles. Perhaps I am fortunate to have so many after all.

Nov. 29 — We have practically closed up shop as far as the range is concerned. All feed left over from range feeding has been hauled and dumped in the laying house feed bins. The combination feed and sleeping room has been swept thoroughly. The heating stove has been dismantled, and oiled, and an old bucket turned over the roof flange to prevent water from entering.

Nov. 30—I believe I have had a pretty good month. Casting back in my mind, we have accomplished an awful lot of work; profitable work, too. There has been none of love's labor lost with the exception of some ratty pullets that had to be put in the incinerator.

Grass Crops for Poultry Range

For good pasture, the grass crop should be short, tender, and abundant. Whether one uses cereal grains for pasture, or the ordinary grasses and clovers, pastures should be kept short clipped, perhaps running a mower over them every ten days during the growing season.

Jointed and tough grasses are not very good. Consult your crops department at your state college for information on varieties of grain, seasons of the year to sow, the use of fertilizers, and other such information.

Sow rye early enough in the fall to get a good top before winter sets in. Sow it thick enough so that when the ground freezes up you can draw your colony houses in place for early spring use. Rye is hardy and will stand a lot of tramping. Roughly, place the colony houses 150 feet apart each way for 200

chickens 6 to 10 weeks old. In early spring, if the rye starts to grow quickly, run a mower over it. Rye pasture is finished about the time oats are high enough to pasture. Plow down the rye and sow corn, rape, kale, or swiss chard for summer and fall feeding. Keep laying pullets away from rape and kale, as these crops are apt to color the yolks and spoil the sale of eggs.

Good cereal pasture will grow plenty of grass for 800 chickens per acre.

Sow rye in the fall. Sow oats three or more times in the spring at weekly or ten day intervals, followed by rape, corn, chard, or similar crops.

There may be times in real dry weather during odd years when you will not have pasture, due to lack of moisture and excessive heat.

Working the land and exposing it to sunshine appears to help considerably in the control of internal parasites.

Do not sow less than four bushels of grain per acre of cereal grains when pasture is wanted. I prefer to sow six bushels of more per acre. You need a good stand of plants for pasture.

Where you are using a regular cattle pasture, be sure to keep the grass cut short, and the fence corners cut clean. Where there is clover, be sure it is cut short.

Whether you use annual or permanent pasture, have strips of corn in each row of houses or range shelters. They need not be over 12 feet wide. It makes good shade, and under favorable conditions you can grow some green feed between the rows of corn.

—W. R. Graham at Neppco Exposition, Oct. 8, 1941.

Danish Poultry Curtailed by War

Denmark's production and exports of dairy and poultry products suffered huge decreases during the first six months of 1941 as compared with the same period of 1940, according to recent reports received in U. S. Department of Agriculture Office of Foreign Agricultural Relations. This reduction is a direct result of the European war, and is being felt even more in the present war than in the war of 1914-1918.

Estimates calculated from official reports from the Danish Government show that production of butter and milk each decreased 32 per cent and of eggs 53 per cent during the January-June period of 1941 as compared with the same 6 months of 1940. The reduction in exports was even greater, butter exports having decreased 57 per cent, while exports of eggs decreased 58 per cent.

—Foreign Crops and Markets, Oct. 20, 1941.

VIEWS OF THE EDITORS

Hens for Home Defense

Every farm should have a flock of good pullets to house each fall. These can either be raised annually as a part of the regular farm program, or pullets can be purchased each fall ready to lay. The size of the flock should be dependent on the needs of the family for eggs and poultry meat, as well as the added income from eggs and meat for sale. Make the unit of such a size that it will merit and receive proper care and attention.

Looking at this problem from a purely nutritional point of view, poultry meat and eggs are among the most delicious of foods. Eggs are rated as one of the best protective foods, so from the personal point of view of the farm family, a flock of hens mean better food and better health.

Diversity of production is now and always has been good farm planning. To have eggs in more than "one basket" is helpful in assuring a more satisfactory, as well as a more evenly distributed income.

Treat the pullet crop as a cash crop, and give it the same careful attention that you would a prize stallion or an advance registry cow. A few hens may scratch for their living, pick up refuse grain, bugs and worms, and lay a few eggs in the spring, when any old hen will lay. But for real satisfaction and profit, the hens should be well housed, well fed, and well managed. Make the hens pay a profit and help feed the family.

—Rural New Yorker, Oct. 4, 1941.

Better Chicks Make Better Business

The margin of profit per chick has grown smaller because of price cuts necessary to meet increased competition. At a lesser price per chick, the hatcheryman is putting out a better and more expensive chick as his step in a sound policy of meeting his increased competition.

The producer of eggs or poultry meat, who, after all, buys all the chicks hatched, has for many years had to operate on a narrow margin per dozen eggs or per pound of meat sold. He is, therefore, seeking the best chicks he can buy for the purpose intended. The chick buyer of today, backed by years of experience, is a most critical buyer.

The discriminating chick producer, through his efforts to produce a superior article of merchandise, is making his appeal to the discriminating chick buyer, who must have a superior article of merchandise in order to prosper under changing conditions. The chick buyer wants to know more and more about the pullorum program and the breeding stock back of the chicks he buys. Once he gets the results expected from the chicks purchased, he is likely to patronize that hatchery for many years. The hatcheryman is no longer indifferent about the loss of a customer. He knows that the repeat customer is his greatest asset, and that it costs real money in these days of competitive advertising to get new customers.

Despite the problems of yesterday or the developments of today, one outstanding fact predominates. Hatcherymen in every section become more and more conscious each year that better stock produces better business for them. Thus every day and every where the tendency is to court public favor with better and better chicks from better and better parent stock.

—H. E. Cosby, The Eggsaminer.

Government Buying

The Government is buying lots of eggs, but it is buying lots of other things in vast quantities, also. Step by step, industry in this country is being put on an all-out basis of armament production. This program affects civilian purchases. A simple thing like paper, for instance, will be cut 4 million tons next year. Every printer, publisher, and letter writer will find that paper is less plentiful.

When it comes to mechanical equipment used in the poultry industry, the high priority rating given to manufacturers of agricultural equipment is not the whole story; many of the parts that will be required will be difficult to get because the manufacturer is on an all-out war manufacturing basis.

This war is different from world war 1. At that time, we supplied wheat, hogs, and men. Our ordnance was largely supplied by the artillery makers of France; our airplanes were mostly on drawing boards or in blue prints; our tanks were non-existent. Now we are to be arsenal of democracy; we are to build cannon; we are to build and deliver airplanes; and we are to supply the steel, construct and deliver tanks. The demand on industry, labor, and materials will be vastly greater than any of us have known anything about in the past.

For 300 years, this country was devoted primarily to the production of peace-time goods. Our theory was that the standard of living should rise, and with its rise, every new invention should be expanded to where it served the uses of more and more people. We are moving now, as rapidly as possible, over into the exclusive business of running a gigantic arsenal.

The new deal spokesmen tell us that this shall not interfere any more than necessary with peacetime construction of consumer goods, but only a politician could believe that we can supply arms to half the cock-eyed world and still have "business as usual." Every farmer will soon learn that it is harder for him to buy fence, and every hatchery will experience more difficulty in getting paper boxes. Cardboard for shell containers is being used at the present time at the rate of 550 carloads a month. Government agencies will use up a hundred million pounds of super book paper next year.

—Frank L. Platt, American Poultry Journal, November, 1941.

Yellow Light for Broiler Raisers

Broiler production, long considered an infant in the poultry family, and not too long ago as a by-product of egg production, has outgrown its short pants and has taken on signs of maturity. Production reached 150,000,000 birds last year totaling 400,000,000 pounds, and all indications are that the tempo of production this year far surpasses 1940. Is this a "caution" light, or has the broiler come into its own with a public acceptance that will continue after the defense program has ceased to give people so much to spend?

Here and there, new broiler areas are springing up, and New England has been quite in step with the movement. Massachusetts has its centers too, located on the South Shore and around Springfield. There has been money in it this year, but now feed is advancing more rapidly than broiler prices. The bubble may be getting ready to burst. Will we be caught with buildings to be paid for, constructed at the present high prices at a time when broiler raising may not bring a new dollar for an old one? It is high time to give this serious consideration.

There are times when broilers may hit a good market and be profitable, but it has long been a gamble in New England. Anyone building for broiler production ought, at least, to construct houses that would be suitable for layers when the bubble bursts. These buildings should be at least 24 feet in depth and constructed as reasonably as possible, so that the operator can compete with the producer in other areas. Then too, labor efficiency in the Del-Mar-Va area is rated at a very minimum of 15,000 to a man, and a man and wife often care for 40,000 birds. Do we want to compete with such conditions? The government has no assistance for the broiler industry, and the situation looks like the yellow light may soon turn to red.

—G. T. Klein in Featheredfax, October, 1941.

Expand Only on Surplus Funds

With egg prices at a high level and with the poultry business expanding in response to the stimulus of high prices and governmental encouragement to produce food for defense, it is hard to resist the temptation to expand our enterprises in order to have more hens to make just that much more money. If this expansion can be made on surplus funds, our advice is to go ahead on your program.

There is no use denying the fact that we will have inflation; we are in it to some extent now. If you are one of those psychic persons who is able to know when this inflation will be at the peak and arrange to have all your indebtedness paid off at that time, then you can safely borrow to the limit for an expansion program. But if you are one of those, why in thunder are you in the poultry business? You should be selling bonds!

Here is our reason for taking a conservative stand on this matter of expanding on borrowed capital during a period of inflation: We have gone through it ourselves. During the inflation period after the last war, we expanded our flock, building when prices were high. Then when the bubble burst, we had to pay off that indebtedness when the income was less than half it was at the time of building. If you borrow $100 when income is $200 per month and then try to pay it back when income has dropped to $50 or $75 per month, it takes very little imagination to realize how difficult and sometimes impossible the task is to repay that loan.

Expand if you can, but have your capital and operating indebtedness practically cleared up during the period of inflation, but before the bubble bursts.

—Herbert A. Hogsett in Chicken Chatter, October, 1941.

Locating the Poultry House

Where would I build the poultry house? That would depend upon who is to care for the flock, the wife, the children, the farmer, or the hired man. If the wife and children are to do most of the work, the poultry house should be on the spot with the best drainage, near enough to their own house to save steps, yet far enough away to keep the chickens off the porch and out of the garden.

If the farmer and the hired man are to do the work, build on the best drained place where it will be in their line of travel from house to barn and back again, if that is possible. Watch where you walk and notice whether there is a good place within step-saving distance of house, granary, and barns. It may be that I'm getting both old and wise because I am always planning to save steps as well as labor.

—Clara M. Sutter, The Farmer, Sept. 20, 1941.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock			Egg per 100 layers			Eggs per flock		
	Jan. 1	Sept. 1	Oct. 1	Sept. 1	Oct. 1	Aggregate Jan.-Oct.	Sept. 1	Oct. 1	Aggregate Jan.-Oct.
North Atl.									
1930-39 (Av.)	97.5	73.6	80.7	39.2	29.2	436	28.9	23.3	369
1940	97.2	74.1	79.2	41.9	33.8	462	31.1	26.6	384
1941	95.4	73.5	80.2	42.4	34.8	478	31.2	27.9	399
E. N. Cent.									
1930-39 (Av.)	108.8	77.5	84.2	35.6	26.6	399	27.8	22.5	371
1940	110.8	79.1	85.8	37.4	30.9	421	29.8	26.6	397
1941	110.3	79.3	92.4	38.6	31.7	441	30.9	29.3	416
W. N. Cent.									
1930-39 (Av.)	117.6	82.1	89.7	32.0	24.4	365	26.2	21.8	366
1940	118.6	82.5	88.2	36.9	28.0	393	30.4	24.7	402
1941	116.1	84.7	94.4	37.8	29.7	418	32.2	28.1	425
South Atl.									
1930-39 (Av.)	58.6	45.8	49.5	31.3	25.5	378	14.1	12.6	190
1940	59.9	47.4	50.4	35.3	29.0	400	16.3	14.5	208
1941	59.4	46.7	51.9	35.8	30.4	417	16.5	15.7	211
South Cent.									
1930-39 (Av.)	64.4	49.1	54.4	27.8	23.9	361	13.7	13.1	198
1940	65.8	49.3	53.3	31.4	27.4	372	15.4	14.6	206
1941	62.7	50.6	56.3	33.3	28.6	406	16.9	16.3	222
Western									
1930-39 (Av.)	73.2	58.5	61.8	39.0	30.9	433	22.9	18.9	279
1940	73.7	57.5	60.7	39.3	34.0	449	22.8	20.2	284
1941	71.6	57.4	61.4	40.7	33.6	452	23.1	20.0	283
United States									
1930-39 (Av.)	84.0	62.0	67.7	33.3	26.0	386	20.2	17.4	276
1940	85.1	62.6	67.2	36.6	29.8	408	22.5	19.8	294
1941	83.2	63.3	70.9	37.7	30.9	430	23.5	21.7	308

Egg production in September, equivalent to 7,353,000 cases, was a record production for the month. It was 6 per cent larger than production in September last year, and 16 per cent above the 10-year (1930-39) average. More than half of this increase is due to a record high rate of lay and the balance to an increase in the number of layers. The aggregate production for the 9 months of this year was the largest since 1930, 3 per cent larger than the aggregate for the same months last year, 8 per cent above the 10-year average, and only 1 per cent smaller than in 1930, when the number of layers was 7 per cent larger. The number of potential layers (hens and all pullets) is considerably greater than last year, although on January 1 it was several per cent smaller. If, during the remainder of this year, there should be a continuation of the record high seasonal level of egg production per layer, total egg production should be between 4 and 5 per cent larger than in 1940.

The rate of egg production per layer during September reached a record high of 10.05 eggs for the month, compared with 9.73 eggs last September and 8.94 eggs, the 10-year average. The aggregate production per layer in the past 9 months was the largest of record and exceeded the layings of last year by 5 per cent and the previous high in 1938 by 2 per cent. A new record for the entire year will almost certainly be reached this year. Favorable weather, ample supplies of feed grains, and relatively high egg prices have been conducive to this record production. The daily rate of lay on October 1 as shown by sample farm flocks was a record for that date, being 4 per cent higher than last year.

Farm flocks during September averaged 263,375,000 layers. This number exceeded last year by over 2 per cent and the 10-year average by 3 per cent. With a record number of young chickens on farms this year and relatively high egg prices, the tendency will be to hold as many layers as possible. This policy should result in holdings of layers on January 1 that may equal the record number on January 1, 1928. On October 1, sample farm flocks averaged 8 per cent more potential layers than last year and 10 per cent more than the 5-year (1936-40) average for October 1.

The total number of all young chickens in farm flocks on October 1 averaged 110.6 birds. This was 12 per cent more than a year ago and about the same as the previous record number on October 1, 1939. The demand for pullet layers has been very active, and a record large crop of commercial broilers is being produced this year. Although storage stocks are higher than a year ago, there is a good demand for all classes of poultry.

—Comment from U. S. D. A. Poultry and Egg Production Report.

Receipts of Eggs and Poultry

Receipts at Central Western primary markets continue the normal seasonal downward tendency. However, weekly reports of the past 4 months show receipts at these plants far greater than a year ago. Since mid-August, weekly receipts at Pacific Coast markets have shown gains compared with a year earlier, and during October were close to last year's level. Prior to August, weekly receipts at these markets were reported from 10 per cent to as much as 18 per cent below those of the corresponding week last year.

Though receipts of eggs on the four larger markets during September exceeded those of September, 1940 by 6.81 per cent, during October they were again below last year's level—as they have been the major portion of the year because of heavy government purchases. As a result of these purchases, large quantities of shell eggs moved from country plants direct to breakers and dryers. Total receipts at the four markets January to September, inclusive, were 6.25 per cent less than for the corresponding period last year.

Movement of live poultry through the Central Western primary markets apparently reached the seasonal peak, and possibly an all-time peak, during early October. Receipts at these points the week of October 18 showed a slight decline from the previous week. In comparison with a year ago, however, receipts of young stock in mid-October were running nearly 35 per cent and fowl 1.5 per cent above a year earlier. There has been a gradual increase in receipts of fowl in comparison with last year, changing from a decrease of 26 per cent in early September to a moderate increase 6 weeks later.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	September 1941	September 1940	September % change	Jan. to Sept., Inc. 1941	Jan. to Sept., Inc. 1940	Jan. to Sept., Inc. % change
New England	57,160	33,623	+ 70.00	405,613	350,794	+15.63
Middle Atlantic	125,415	110,807	+ 13.18	1,756,766	1,695,144	+ 3.64
South Atlantic	9,715	11,418	– 14.92	185,377	224,139	–17.29
East North Central	133,922	112,964	+ 18.55	2,625,347	2,559,406	+ 2.58
West North Central	384,480	411,452	– 6.56	6,035,097	6,746,377	–10.54
South Central	370	338	+ 9.47	73,641	74,833	– 1.59
Mountain	16,673	21,667	– 23.05	305,623	302,475	+ 1.04
Pacific	31,167	33,846	– 7.92	143,202	345,596	–58.56
Miscellaneous	209	270	– 22.59	3,052	4,185	–27.07
TOTAL	759,111	736,385	+ 3.09	11,533,718	12,302,949	– 6.25

Receipts of Dressed Poultry (pounds) at 4 Markets*

New England	1,399,215	1,677,698	– 16.60	8,646,674	11,325,691	–23.65
Middle Atlantic	4,992,995	5,048,841	– 1.11	46,345,377	39,389,228	+17.66
South Atlantic	4,067,898	1,816,855	+123.90	31,297,759	19,942,992	+56.94
East North Central	3,049,773	3,560,305	– 14.34	23,973,993	26,659,988	–10.08
West North Central	19,375,885	19,685,464	– 1.57	97,614,210	113,684,400	–14.14
South Central	1,051,210	924,396	+ 13.72	14,752,071	13,250,886	+11.33
Mountain	131,986	155,670	– 15.21	3,330,288	3,599,669	– 7.48
Pacific	325,326	495,898	– 34.40	8,836,934	10,585,232	–16.52
Miscellaneous	0	0	–	0	128,680	–
TOTAL	34,394,288	33,365,127	+ 3.08	234.797,306	238,566,766	– 1.58

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	Cases of Eggs % Chg.	Pounds of Poultry (000 omitted) 1941	Pounds of Poultry (000 omitted) 1940	Pounds of Poultry (000 omitted) % Chg.	Pounds of Young Stock (000 omitted) 1941	Pounds of Young Stock (000 omitted) 1940	Pounds of Young Stock (000 omitted) % Chg.	Pounds of Fowl (000 omitted) 1941	Pounds of Fowl (000 omitted) 1940	Pounds of Fowl (000 omitted) % Chg.
Oct. 4	82,528	33,849	+143.81	6,606	6,102	+ 8.25	4,384	3,707	+18.25	2,144	2,307	–7.10
Oct. 11	71,078	30,484	+133.16	7,651	6,588	+16.13	4,915	3,791	+29.64	2,661	2,702	–1.53
Oct. 18	63,829	27,855	+129.15	7,608	6,301	+20.73	4,966	3,684	+34.77	2,560	2,523	+1.44
Oct. 25	54,719	24,127	+126.79	7.486	6,102	+22.68	4,928	3,605	+36.70	2,480	2,415	+2.70

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	Cases of Eggs 1941	Cases of Eggs 1940	% Change from Previous Week	% Change from Last Year
Oct. 4	62	49,841	48,135	–0.57	+3.54
Oct. 11	62	50,182	47,796	+ .74	+4.99
Oct. 18	61	48,940	48,541	–2.12	+0.82
Oct. 25	61	49,525	49.105	+1.20	+0.86

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
Oct. 4	27	30,688	–2.83	+21.48
Oct. 11	29	35,389	+2.81	+26.39
Oct. 18	27	32,517	–1.55	+24.69
Oct. 25	27	31,902	–5.00	+22.54

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1940	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1939	Avg. Egg Price per Doz. (Dollars) 1941	Avg. Egg Price per Doz. (Dollars) 1940	Avg. Egg Price per Doz. (Dollars) 1939	Avg. Feed Cost per 100 lbs. (Dollars) 1941	Avg. Feed Cost per 100 lbs. (Dollars) 1940	Avg. Feed Cost per 100 lbs. (Dollars) 1939
October 2	6.7	6.5	7.1	.358	.288	.26	2.41	1.88	1.84
October 9	6.1	6.2	6.5	.379	.305	.281	2.32	1.88	1.82
October 16	6.2	6.1	5.8	.357	.31	.317	2.23	1.88	1.83
October 23	6.0	6.1	6.1	.37	.316	.299	2.22	1.94	1.82
October 30	5.7	6.0	6.3	.39	.32	.286	2.23	1.92	1.83

—Compiled by N. Y. State Department of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1940	Dozens of Eggs to Buy 100 lbs. of Laying Ration 10-Yr. Avg. 1931-40	Price of Fresh Graded Firsts (Dollars) 1941	Price of Fresh Graded Firsts (Dollars) 1940	Cost of Ration per 100 lbs. (Dollars) 1941	Cost of Ration per 100 lbs. (Dollars) 1940
Oct. 4	5.05	6.17	5.22	.300	.197	1.515	1.218
Oct. 11	4.83	6.19	5.04	.303	.197	1.466	1.222
Oct. 18	4.56	6.21	4.92	.310	.200	1.414	1.245
Oct. 25	4.61	5.95	4.78	.312	.213	1.442	1.270

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941	1940	1939	1938	1937	1936
September	5.76	5.66	5.79	4.63	6.16	6.98
Jan.-Sept.	7.04	8.70	7.31	7.23	9.17	7.39
Year		7.87	7.17	6.50	8.27	7.07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

The egg market during October exhibited a firm tone with a seasonal upward price trend. Receipts on the larger markets were lighter than a year ago, despite a reported increase in production of 10 per cent on October 1 over the same date last year. Storage withdrawals were more favorable than during September although well below the 1940 level. Moderate purchases of shell eggs and unusually heavy purchases of dried eggs by the Federal Surplus Commodities Corporation tended to strengthen the market.

Wholesale prices continued the upward trend on all principal markets during October, but a downward reaction on premium quality whites resulted in all or part of the gains on these grades being lost. A similar break occurred to a lesser degree during the closing days of October, 1940, when prices were considerably lower. Prices of mixed colors at Chicago and eastern markets advanced 2 to 3½ cents, with prices generally maintained at the close. Pacific Coast markets showed some irregularity, but closed 2 to 3 cents higher on large extras, 1 to 2 cents higher on standards, and unchanged to a cent lower on mediums. Prices on mixed colors at the close of the month were 8 to 11½ cents higher than on the corresponding date last year, while fancy quality whites on eastern markets were only 2½ cents higher than last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Oct. 3	Oct. 10	Oct. 17	Oct. 24	Oct. 31	Oct. 31 '40
Mixed Color Firsts	31-31½	32-32½	32	33	33½	24½
Nearby and Midwestern White Premium Marks	41½-44	42½-45	39½-42	45½-48	40½-43	38-40½
Nearby and Midwestern White Exchange Specials	41	42	39	45	39½-40	37½
Pacific Coast Specials	47¾-48¼	45-47	44-45½	49½-50	45-46½	39½-40¾
Nearby and Midwestern Brown Specials	36¾	36½-36¾	37½	39	40	34

Mid-Month Farm Price of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1	23.2	25.6	26.8	30.3			

Government Purchases

Purchases of Eggs by the U. S. Department of Agriculture

Week Ending	Shell Cases	Frozen 1,000 Pounds	Dried 1,000 Pounds
October 4	23,600	———	4,881
October 11	30,395	———	2,869
October 18	17,200	———	1,372
October 25	19,600	———	1,965
Jan. 1 to Oct. 25	1,653,450	66,190	29,481

Eggs in Storage

Total U. S. storage stocks of shell eggs on October 1 were 10 per cent less than a year ago. September net withdrawals were only 58 per cent of last year's volume and of the 5-year (1936–1940) September average. October 1 holdings closely approached those of October 1, 1939. However, withdrawals during September this year were only 60 per cent as great as in September 1939. Some improvement developed during October with net withdrawals in the four markets approximately 75 per cent as heavy as a year ago. Total U. S. storage stocks of frozen eggs on October 1 were 36 per cent greater than on the corresponding date last year. Net withdrawals in September were 16 million as compared with 15 million in September 1940. During the four weeks ending October 25, storage stocks of shell eggs in the 35 cities increased about 20,000 cases while frozen egg stocks decreased a million pounds.

Storage Holdings of Eggs

Kind	Oct. 1 5-Yr. Avg. 1936-40	Oct. 1 1940	Sept. 1 1941	Oct. 1 1941	% Change Oct. '40-Oct. '41
		Thousands			
Shell Eggs (cases)	5,822	6,040	6,131	5,432**	–10.1
Frozen Eggs (lbs.)	121,476	130,787	194,006	177,940***	+36.0
Frozen Case Equivalent (cases)*	3,471	3,737	5,543	5,084	+36.0
Total (cases)	9,293	9,777	11,674	10,516	+ 7.5

* Frozen eggs are converted on the basis of 35 pounds to the case.
** Includes 595,000 cases owned by the SMA and FSCC.
*** Includes 29,300,000 pounds owned by the SMA and FSCC.

Poultry Meat Prices

The dressed poultry market ruled easy during October, with prices of fowl and broilers 1 to 1½ cents lower at New York. Roaster and fryer prices showed no material change. Turkey prices declined on all classes, but particularly on heavy young toms, which, due to scarcity, have for some time been priced several cents above young hens. The heavier the weight per bird, the higher the price had been. This abnormal situation was rectified by increased receipts. Heavy turkeys declined from 3½ to 4 cents above the price of hens to 1½ to 2½ cents below. Receipts of dressed poultry at the four markets, October 1 to 27, inclusive, were running about 22 per cent over the previous month and 7 per cent above the corresponding period last year. September receipts at the four markets were slightly heavier (3.08 per cent) than last year but the total for the first 9 months was slightly less (1.58 per cent) than for the corresponding period last year. At the October rate of arrivals the decrease from last year should soon be eliminated.

Live poultry markets declined under heavy receipts during October These conditions are normal for this season of the year, but were intensified by the recent unusually heavy movement. Live fowl prices declined 1 to 2 cents during the month but toward the close were still 20 per cent above last year's level. Young stock declined from ½ to 1 cent at Chicago to 3 to 4 cents on eastern markets. At the lower level, these prices were 1 to 4½ cents above last year on the various grades and classes.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Mid-Month Farm Price of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3	16.3	16.8	16.3	16.3			

Poultry in Storage

Storage Holdings of Poultry

Kind	Oct. 1 5-Yr. Avg. 1936-40	Oct. 1 1940	Sept. 1 1941	Oct. 1 1941	% Change Oct. '40-Oct. '41
		Thousand Pounds			
Broilers	11,784	8,425	9,729	11,743	+39.3
Fryers	5,187	6,215	5,274	8,812	+41.6
Roasters	6,673	6,918	8,880	12,896	+86.4
Fowls	14,131	21,990	18,000	20,478	− 6.9
Turkeys	7,985	15,234	12,802	9,016	−40.9
Ducks	9,708	11,649	11,684	12,601	+ 8.1
Miscellaneous	16,085	13,481	12,102	12,711	− 5.0
Unclassified		6,930	6,892	8,156	+19.1
Total	71,553	90,842	85,363	96,413	+ 6.1

U. S. storage stocks of frozen poultry on October 1 of 96 million pounds were 6 million greater than on same date in 1940. A net gain for September of 11 million pounds was made up of all classes of poultry except turkeys. Holdings in the 35 markets increased at an unusually rapid rate. During the 4 weeks ending October 25, net accumulations in this group were 18.8 million pounds, as compared with 13.6 million pounds during the corresponding period last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Hatchery Operations

The production of baby chicks by commercial hatcheries in September set a new high record for the month, the U. S. Department of Agriculture reports. Production is estimated at 23,058,000 chicks, 79 per cent more than in September last year, and 63 per cent above the previous high output of September 1939. Hatchings during the first 9 months of this year exceed production of the same period last year by 203,556,000 chicks, and the previous high output (1939) for that period by 125,480,000 chicks.

The production of baby chicks in September was limited by the supply of good hatching eggs, and hatcheries may not be able to fill orders on time before the first of the year. Most of the chicks hatched at the present time are going into broiler production. An exceptional demand exists for chicks for egg laying purposes, however, and the relatively few being produced at the present time are finding a ready outlet, particularly in the Southern States. Of the chicks hatched in September, 86 per cent of the total were of the heavy breeds popular with the broiler industry, compared with 85 per cent in September last year. In the spring months, only about 60 per cent of the chicks hatched are of the heavy breeds.

The increases over last year's September hatchings were fairly well

Eggs Set by Commercial Hatcheries

Geographic Divisions	Sept. 1938	Sept. 1939	Sept. 1940	Sept. 1941	% chg. from Sept. 1940	Jan.-Sept. Inc. 1940	Jan.-Sept. Inc. 1941	% chg. from 1940
			Thousands					
New England	3,417	3,885	2,971	4,843	+ 63	60,591	79,855	+32
Middle Atlantic	1,516	1,903	2,021	2,930	+ 45	104,621	117,156	+12
South Atlantic	3,154	4,472	4,737	6,869	+ 45	92,029	123,806	+35
E. N. Central	1,762	2,459	2,427	4,005	+ 65	360,226	434,651	+21
W. N. Central	1,829	2,467	2,302	7,735	+236	360,897	476,624	+32
South Central	2,305	2,446	2,663	4,660	+ 75	109,337	145,174	+33
Mountain	145	184	175	238	+ 36	23,167	28,157	+22
Pacific	3,606	3,350	3,101	4,652	+ 50	63,495	79,821	+26
United States	17,734	21,166	20,397	35,932	+76	1,174,363	1,485,244	+26

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Sept. 1938	Sept. 1939	Sept. 1940	Sept. 1941	% chg. from Sept. 1940	Jan.-Sept. Inc. 1940	Jan.-Sept. Inc. 1941	% chg. from 1940
			Thousands					
New England	2,091	2,781	2,149	3,352	+ 56	42,474	58,759	+38
Middle Atlantic	974	1,245	1,289	2,398	+ 86	67,394	78,076	+16
South Atlantic	2,046	2,897	2,771	4,018	+ 45	66,142	89,621	+35
E. N. Central	1,241	1,802	1,430	2,374	+ 66	227,893	278,539	+22
W. N. Central	1,326	1,694	1,476	5,077	+244	243,296	307,040	+26
South Central	1,473	1,628	1,959	3,428	+ 75	76,530	100,749	+32
Mountain	89	107	100	135	+ 35	14,871	18,638	+25
Pacific	2,226	2,030	1,724	2,276	+ 32	42,962	53,696	+25
United States	11,466	14,184	12,898	23,058	+ 79	781,562	985,118	+26

distributed by principal producing areas, the outstanding exception being the West North Central States. There, hatchings were maintained at an unusually high level, the output being 244 per cent larger than that of September last year. Hatcheries in that area also set 236 per cent more eggs. Because of the large demand for late-hatched chicks this year, many hatcheries there are showing an unusual interest in meeting this demand. A greatly increased output from this area in the next few months, particularly from Missouri, is possible, as some of the largest hatcheries in the country are located there. The remaining regions showed increases ranging from 32 per cent in the Pacific Coast States to 86 per cent in the Middle Atlantic States.

Hatcheries report a large increase in advance orders over those on October 1 last year—the increase totaling 91 per cent. During the past month, however, a note of caution has been introduced in the outlook for the hatchery industry. The production of broilers and fryers in the commercial producing areas has been booming and though consumption is greater than ever before, the advance in feed prices mid-August to mid-September was not offset by higher broiler and fryer prices. Feed prices during that time advanced about 6 per cent while broiler and fryer prices showed little change. For the first time this year, the poultry-feed price ratio is now less favorable than a year ago. While the demand for broilers has been exceptionally good, the urgent need right now is for egg production.

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Oct. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Oct. 1, 1940	Sept. 1940	Sept. 1941	Sept. 1940	Sept. 1941	% change from Sept. 1940
New England	+ 96	3	2	97	98	– 26
Middle Atlantic	+204	6	3	94	97	+1800
South Atlantic	+ 95	3	7	97	93	– 88
E. N. Central	+ 22	13	34	87	66	+ 118
W. N. Central	+196	1	—	99	100	+ 750
South Central	+147	12	15	88	85	+ 255
Mountain	——	17	12	83	88	——
Pacific	+ 37	57	60	43	40	+ 192
United States	+ 91	15	14	85	86	+ 158

The feed-egg price ratio continues favorable to the egg producer and the prospective demand for chicks for egg laying purposes is encouraging. Egg prices advanced only about 13 per cent from mid-August to mid-September, compared with a usual advance of about 17 per cent, while feed prices, which usually change but little during that time, advanced 6 per cent. However, the moderate advance in egg prices was due to the extremely rapid earlier rise and egg prices are now the highest since 1929. The feed-egg price ratio will probably remain at favorable levels at least as long as the government's program continues to be one of maintaining a normal domestic supply of eggs and of shipping large quantities to England.

Egg Breaking Operations

Liquid egg production by commercial egg breaking plants in September was over five times that of September last year, the U. S. D. A. reports. Production was estimated at 12,701,000 pounds, compared with 2,401,000 pounds a year earlier. The large increase this year can be attributed to the heavy buying of dried eggs by the Government. If it were not for this demand, most of the plants now operating would be closed down until next spring. The demand for dried eggs is so large, however, that production facilities have been greatly expanded. It would not be surprising if the monthly production of dried eggs during the spring months next year would be as large as the total output of the year 1939, when 10,039,000 pounds were produced.

Utilization reports show that 65 per cent of the September production of liquid eggs was used for drying, compared with 28 per cent in September last year. Ten firms drying eggs reported a production of 2,697,269 pounds, compared with 107,576 pounds last year. Approximately 83 per cent of the production consisted of dried whole eggs, the type that is being exported to Great Britain under the Lease-Lend Act. But despite the unusually large dried egg production, only relatively small quantities of frozen eggs were used for drying purposes, because the September farm output of eggs set a new high record for the month at 7,353,000 cases. Later in the fall, as farm egg production drops to its low for the year, dryers may have to draw upon frozen egg supplies to meet their commitments.

Stocks of frozen eggs on October 1 totaled 177,940,000 pounds. This was 47,153,000 pounds greater than on October 1 last year and 56,464,000 pounds above the October 1 average. The firms reporting stocks of dried eggs on October 1 showed that out of a total of 5,332,285 pounds only 357,782 pounds remained unsold.

Liquid Egg Production, September 1940-41

		September 1940	September 1941	% change Sept. '40-Sept. '41
		Thousand Pounds		
Whole eggs		1,244	10,237	+723
Mixed eggs (plain)		214	292	+ 36
Mixed eggs (emulsions, also with sugar, salt, etc.)		48	63	+ 31
Egg whites (all descriptions)		454	1,080	+138
Egg yolks packed	Without salt, sugar, etc.	165	267	+ 62
	With sugar	276	127	– 54
	With salt	——	635	——
	All yolk emulsions, including glycerine	——	——	——
Total		2,401	12,701	+429

Dried Egg Production, September 1940-41

Commodity	Total Reported September 1941	Same Firm Comparison		
		Sept. 1940	Sept. 1941	% change Sept. '40-Sept. '41
	Pounds		Pounds	
Whole	2,227,309	34,850	2,227,309	+6291
Albumen	224.699	64,674	224,699	+ 247
Yolks	245,261	8,052	245,261	+2946
Total	2,697,269	107,576	2,697,269	+2407
Firms reporting	10	10		

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity		August 1941	August 1940	Jan. to Aug., Inc. 1941	Jan. to Aug., Inc. 1940
Eggs in shell	(Doz.)	920,735	333,595	21,830,654	3,366,154
Egg Products, Frozen, Dried, etc.	(lbs.)	6,939,224	14,110	16,384,614	113,004
Live Poultry		7,696	5,842	68,121	82,053
Dressed Poultry		253.488	158,070	1.754.974	1,001,012

Imports of Eggs and Poultry

Eggs in shell	(Doz.)	436,899	16,001	726,211	141,689
Whole Eggs, dried	(lbs.)	0	0	0	29,250
Whole Eggs, frozen	(lbs.)	0	0	89	167
Yolks, dried	(lbs.)	181,400	163,950	1,358,794	1,347,765
Yolks, frozen	(lbs.)	0	0	11,524	0
Albumen, dried	(lbs.)	28,600	33,400	167,292	216,600
Albumen, frozen	(lbs.)	0	0	0	0
Live Poultry	(lbs.)	159,551	157,492	1,203,445	914,927
Dressed Poultry	(lbs.)	217,966	10,214	298,869	302,783
Prepared Poultry	(lbs.)	6.454	3,083	199.273	227,675

RESULTS OF LAYING TESTS

J. A. Hanson White Leghorns led all pens again in the 1940-41 test year, his top Storrs pen passing T. N. Wilcox's Barred Rock entry at Georgia in the last 22 days to win by 19.65 points.

W. A. Seidel's Leghorn at Texas laid 343 eggs for 376.25 points to establish a new all-time record for individual production.

New records, both for individual and pen production, were set in many breeds. Particularly outstanding was the showing of Wilcox's pen, which surpassed the previous pen record by 386 eggs and 528.35 points.

Harco Orchards' Rhode Island Red pen at Storrs came up rapidly during the last few months to establish a new record for the breed of 3,770 eggs and 4,021.20 points.

Average production for the 15,704 pullets entered in standard tests was the highest on record – 197.25 eggs and 204.19 points. Mortality hit a new low—19.45 per cent, and egg weight a new high—24.68 ounces per dozen.

Paul Hansen's Black Australorps at California rolled up an impressing record, the 13 birds laying 3,110 eggs for 3,184 points, breaking the old record by 694 eggs and 634.30 points.

Storrs again took high test honors, but the entries there averaged 5.08 points less than those of last year.

Western New York had the lowest test mortality, 12.79 per cent, which is 2.02 points under the record established there last year.

Twenty High Pens, All Breeds, For Year

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	3964	4241.60	Storrs
T. N. Wilcox	Barred Rock	3943	4222.95	Georgia
Harco Orchards	Rhode Island Red	3770	4021.20	Storrs
E. B. Parmenter	Rhode Island Red	3611	3895.80	Maine
J. J. Warren	Rhode Island Red	3615	3874.30	Long Island
J. A. Hanson	White Leghorn	3655	3870.30	Storrs
E. B. Parmenter	Rhode Island Red	3745	3856.25	Paterson, N. J.
J. A. Hanson	White Leghorn	3547	3781.55	Rhode Island
Crescent Farms	White Leghorn	3558	3755.05	Florida
E. B. Parmenter	Rhode Island Red	3582	3749.75	Passaic, N. J.
Roberts Poultry Farm	Rhode Island Red	3467	3736.50	Storrs
H. J. Hardin	Rhode Island Red	3494	3695.70	Georgia
E. B. Parmenter	Rhode Island Red	3413	3689.80	Rhode Island
Burr's Poultry Farm	White Leghorn	3585	3687.90	Pennsylvania
L. D. Bartholomew	Rhode Island Red	3410	3659.90	Storrs
Rapp's Poultry Farm	White Leghorn	3474	3658.05	Hunterdon, N. J.
J. A. Hanson	White Leghorn	3459	3643.55	Pennsylvania
C. C. Hersey	Rhode Island Red	3520	3633.45	Storrs
Richard H. Gee	Rhode Island Red	3449	3629.65	Rhode Island
Booth Farms and Hatchery	White Leghorn	3430	3622.75	Georgia

High Pen in Each Test For Year

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	3964	4241.60	Storrs
T. N. Wilcox	Barred Rock	3943	4222.95	Georgia
E. B. Parmenter	Rhode Island Red	3611	3895.80	Maine
J. J. Warren	Rhode Island Red	3615	3874.30	Long Island
E. B. Parmenter	Rhode Island Red	3745	3856.25	Paterson, N. J.
J. A. Hanson	White Leghorn	3547	3781.55	Rhode Island
Crescent Farms	White Leghorn	3558	3755.05	Florida
E. B. Parmenter	Rhode Island Red	3582	3749.75	Passaic, N. J.
Burr's Poultry Farm	White Leghorn	3585	3687.90	Pennsylvania
Rapp's Poultry Farm	White Leghorn	3474	3658.05	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	3481	3619.25	California
Kauder's Pedigreed Leghorn	White Leghorn	3477	3583.65	Texas
A. L. Frees	New Hampshire	3244	3419.05	Arizona
E. B. Parmenter	Rhode Island Red	3208	3410.55	Western New York
J. J. Warren	Rhode Island Red	3194	3408.90	Missouri
Foreman Poultry Farm	White Leghorn	3350	3387.80	Oklahoma
Foreman Poultry Farm	White Leghorn	3162	3328.35	Michigan
Creighton Bros.	White Leghorn	3156	3314.30	Central New York

High Pen in Each Test For September—(22 Days)

Owner	Breed	Eggs	Points	Test
Wm. Gillmeister	White Leghorn	228	245.60	Western New York
J. A. Hanson	White Leghorn	221	241.10	Storrs
Content Farms	White Leghorn	215	229.15	Central New York
T. N. Wilcox	Barred Rock	202	221.35	Georgia
Burr's Poultry Farm	White Leghorn	207	217.85	Pennsylvania
McCoon Poultry Breed. Farm	White Leghorn	214	215.25	California
Wene Chick Farms	White Leghorn	206	215.20	Passaic, N. J.
Raymond P. Potter	Rhode Island Red	191	203.25	Maine
Rochelle Egg Farm	White Leghorn	189	202.70	Texas
E. B. Parmenter	Rhode Island Red	190	201.60	Paterson, N. J.
A. L. Frees	New Hampshire	185	197.15	Arizona
Hartel Poultry Breeding Farm	White Leghorn	180	195.70	Hunterdon, N. J.
J. A. Hanson	White Leghorn	179	195.10	Rhode Island
T. N. Wilcox	Barred Rock	176	190.50	Florida
Content Farms	White Leghorn	180	189.95	Long Island
Booth Farms	White Leghorn	174	189.20	Missouri
M. L. Burnham	White Leghorn	169	183.10	Oklahoma
Aseltine Poultry Farm	Rhode Island Red	161	176.80	Michigan

High Pen in Each Breed For Year

Owner	Breed	Eggs	Points	Test
J. A. Hanson	White Leghorn	3964	4241.60	Storrs
T. N. Wilcox	Barred Rock	3943	4222.95	Georgia
Harco Orchards	S. C. Rhode Island Red	3770	4021.20	Storrs
Thos. J. Harrold	New Hampshire	3306	3437.20	Georgia
Paul Hansen	Black Australorp	3110	3184.25	California
Alfred MacMillan	White Rock	2880	2953.20	Texas
Wade Brown	White Wyandotte	2741	2755.65	Oklahoma
Raymond S. Thomas	Ancona	2772	2746.15	Pennsylvania
Iowa Master Breeders	R. C. Rhode Island Red	2514	2635.50	Texas
E. J. Covey	Black Minorca	2363	2483.35	Texas
Superior Hatchery	Light Brahma	2216	2362.55	Texas
Illinois Hatchery	Brown Leghorn	2222	2323.00	Texas
Ward's Poultry Farm	Buff Leghorn	2292	2286.80	Oklahoma
Lindstrom Poultry Farm	Buff Minorca	2173	2144.60	Texas
Iowa Master Breeders	Buff Orpington	1878	2031.65	Missouri
Snowdrift Acres	White Giant	1715	1864.15	Rhode Island
S. E. Raymond	Lamona	1737	1858.70	Storrs
Colonial Poultry Farms	White Minorca	1561	1698.90	Missouri

High Hen in Each Breed For Year

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	343	376.25	Texas
E. B. Parmenter	Rhode Island Red	333	363.95	Rhode Island
T. N. Wilcox	Barred Rock	332	360.65	Georgia
Thos. J. Harrold	New Hampshire	327	341.60	Georgia
Paul Hansen	Black Austrolorp	302	326.55	California
Drumm Egg Farm	White Rock	300	322.55	Georgia
Iowa Master Breeders	R. C. Rhode Island Red	289	314.45	Texas
Lindstrom Poultry Farm	White Wyandotte	309	313.65	Pennsylvania
Superior Hatchery	Light Brahma	270	284.45	Texas
S. E. Raymond	Lamona	265	282.80	Storrs
Raymond S. Thomas	Ancona	284	264.20	Pennsylvania
Illinois Hatchery	Brown Leghorn	275	260.45	Texas
E. J. Covey	Black Minorca	241	257.05	Texas
Iowa Master Breeders	Buff Orpington	233	255.80	Missouri
Raymond Murphy	White Giant	233	246.70	Missouri
Lindstrom Poultry Farm	Buff Minorca	239	245.45	Texas
Colonial Poultry Farms	White Minorca	221	242.35	Missouri
Ward's Poultry Farm	Buff Leghorn	229	224.80	Oklahoma

High Hen in Each Test For Year

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	343	376.25	Texas
Rapp's Poultry Farm	White Leghorn	340	373.35	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	333	363.95	Rhode Island
G. B. Treadwell	Rhode Island Red	333	362.65	Maine
E. B. Parmenter	Rhode Island Red	335	362.15	Storrs
T. N. Wilcox	Barred Rock	332	360.65	Georgia
J. J. Warren	Rhode Island Red	337	357.75	Western New York
W. A. Seidel	White Leghorn	328	355.85	Arizona
Foreman Poultry Farm	White Leghorn	334	355.55	Pennsylvania
Geo. A. Pearce	Rhode Island Red	324	352.05	Passaic, N. J.
J. A. Hanson	White Leghorn	326	349.90	California
Missouri Valley Poul. Fm.	Rhode Island Red	325	349.45	Oklahoma
E. B. Parmenter	Rhode Island Red	320	344.60	Long Island
Schaffner Poultry Farm	White Leghorn	322	343.20	Florida
E. B. Parmenter	Rhode Island Red	313	338.65	Paterson, N. J.
Foreman Poultry Farm	White Leghorn	321	337.20	Michigan
Schaffner Poultry Farm	White Leghorn	312	336.65	Missouri
East Side Leghorn Farm	White Leghorn	343	328.60	Central New York

Twenty High White Leghorn Pens For Year

Owner	Eggs	Points	Test
J. A. Hanson	3964	4241.60	Storrs
J. A. Hanson	3655	3870.30	Storrs
J. A. Hanson	3547	3781.55	Rhode Island
Crescent Farms	3558	3755.05	Florida
Burr's Poultry Farm	3585	3687.90	Pennsylvania
Rapp's Poultry Farm	3474	3658.05	Hunterdon, N. J.
J. A. Hanson	3459	3643.55	Pennsylvania
Booth Farms and Hatchery	3430	3622.75	Georgia
Kauder's Pedigreed Leghorns	3477	3583.65	Texas
Dryden Poultry Breeding Farm	3382	3534.60	Texas
Rochelle Egg Farm	3422	3495.40	Texas
Colonial Poultry Farms	3333	3464.60	Maine
M. Johnson	3301	3459.80	Texas
J. A. Hanson	3326	3459.40	Passaic, N. J.
McCoon Poultry Breeding Farm	3493	3456.35	California
McCoon Poultry Breeding Farm	3342	3451.25	Texas
I. Commer	3338	3444.45	Texas
E. C. Foreman	3268	3418.40	Florida
Hill Hatchery	3423	3413.30	Georgia
J. A. Hanson	3208	3410.55	Western New York

Twenty High Rhode Island Red Pens For Year

Owner	Eggs	Points	Test
Harco Orchards	3770	4021.20	Storrs
E. B. Parmenter	3611	3895.80	Maine
J. J. Warren	3615	3874.30	Long Island
E. B. Parmenter	3745	3856.25	Paterson, N. J.
E. B. Parmenter	3582	3749.75	Passaic, N. J.
Roberts Poultry Farm	3467	3736.50	Storrs
H. J. Hardin	3494	3695.70	Georgia
E. B. Parmenter	3413	3689.80	Rhode Island
L. D. Bartholomew	3410	3659.90	Storrs
C. C. Hersey	3520	3633.45	Storrs
Richard H. Gee	3449	3629.65	Rhode Island
E. B. Parmenter	3481	3619.25	California
J. J. Warren	3409	3585.25	Storrs
G. B. Treadwell	3359	3552.80	Maine
J. V. N. Stults	3431	3509.00	Storrs
E. B. Parmenter	3313	3501.10	California
G. B. Treadwell	3302	3480.00	Storrs
J. J. Warren	3349	3471.40	Long Island
W. H. Wilson	3321	3461.60	Georgia
J. J. Warren	3270	3459.20	Texas

Twenty New Hampshire Pens For Year

Owner	Eggs	Points	Test
Thos. J. Harrold	3306	3437.20	Georgia
A. L. Frees	3244	3419.05	Arizona
Geo. A. Pearce	3334	3408.90	Hunterdon, N. J.
Joachim Breeding Farm	3208	3361.30	Long Island
Colonial Poultry Farms	3153	3360.10	Texas
Joachim Breeding Farm	3096	3352.85	Storrs
M. L. Estabrook	3194	3347.55	Maine
Lucas Poultry Farm	3099	3293.40	Missouri
Williamson's New Hampshire Farm	3091	3261.95	Florida
C. B. Cummings	3218	3253.35	Georgia
Mapes Poultry Farm	3045	3219.70	Western New York
G. E. Nemec	3008	3193.10	Arizona
Hank's Hennery	2987	3191.95	Storrs
C. E. Colby	3057	3143.70	Storrs
Ned C. Willoughby	3002	3125.55	Georgia
Gold Spot Hatchery	2956	3122.05	Arizona
Joachim Breeding Farm	2919	3074.70	Long Island
Ned C. Willoughby	3197	3072.45	Georgia
Ned C. Willoughby	3017	3051.55	Florida
Nedlar Farm	2889	3035.55	Maine

Twenty High Barred Plymouth Rock Pens For Year

Owner	Eggs	Points	Test
T. N. Wilcox	3943	4222.95	Georgia
A. J. Urquhart	3427	3615.00	Storrs
David T. Cohen	3359	3583.15	Pennsylvania
T. N. Wilcox	3359	3566.90	Florida
J. W. Schaible	3304	3431.10	Hunterdon, N. J.
Dryden Poultry Breeding Farm	3314	3374.20	Pennsylvania
Dryden Poultry Breeding Farm	3257	3360.55	California
David T. Cohen	3220	3313.20	Storrs
R. C. E. Wallace	3191	3310.70	Long Island
Dryden Poultry Breeding Farm	3101	3251.40	Missouri
Booth Farms and Hatchery	3020	3229.40	Missouri
Fuzzydele Farms	3025	3225.75	Central New York
David T. Cohen	2961	3208.20	Central New York
Dryden Poultry Breeding Farm	3070	3206.90	Storrs
Dryden Poultry Breeding Farm	2984	3157.95	California
R. C. E. Wallace	3014	3129.00	Oklahoma
Piho Bros.	3075	3078.20	Maine
Tarleton Poultry Farm	2967	3077.50	Texas
Foster Jameson	2895	3074.80	Maine
E. B. Parmenter	2947	3074.60	Pennsylvania

Twenty High White Plymouth Rock Pens For Year

Owner	Eggs	Points	Test
Alfred MacMillan	2880	2953.20	Texas
Carter-Dunham	2804	2918.10	Texas
Colonial Poultry Farms	2727	2914.30	Oklahoma
Riley Poultry Farm	2799	2861.65	Texas
Albert C. Lawton	2806	2823.30	Storrs
Missouri Valley Hatchery	2638	2777.00	Missouri
Booth Farms and Hatchery	2746	2776.90	Texas
Knepley Hatchery	2642	2718.10	Oklahoma
Carter-Dunham	2553	2700.80	Storrs
Airy View Farm	2571	2690.60	Hunterdon, N. J.
LeRoy McCurdy	2519	2646.65	Missouri
C. W. Winkler	2526	2644.20	Oklahoma
Riley Poultry Farm	2552	2616.95	Storrs
Quimby School	2497	2603.05	Rhode Island
Philip S. Davis	2488	2595.15	Central New York
Homestead Farm	2694	2578.90	Pennsylvania
Hillview-Imperial	2508	2563.65	Storrs
Oscar Holtzapple	2370	2555.70	Missouri
Carter-Dunham	2510	2547.30	Georgia
Riley Poultry Farm	2585	2543.60	Oklahoma

Average Production and Mortality, Each Test For Year

Test	No. Birds in Test	Eggs Per Bird to Date	Points Per Bird to Date	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Sept.	Per Cent Mortality to Date
Storrs	1,300	209.24	218.11	24.84	1.15	18.77
Texas	1,300	209.21	216.97	24.74	1.85	22.44
California	650	209.60	216.51	24.64	1.23	15.85
Arizona	390	206.32	215.75	24.80	.51	19.49
Paterson, N. J.	169	203.69	211.37	24.74	4.29	19.53
Pennsylvania	1,027	206.69	210.91	24.40	1.36	19.28
Western New York	884	198.04	206.94	24.90	2.09	12.79
Hunterdon, N. J.	650	199.61	206.77	24.70	1.53	16.77
Passaic, N. J.	1,014	201.40	206.39	24.48	2.27	18.74
Rhode Island	546	193.87	205.88	25.22	4.76	24.00
Georgia	1,300	200.62	205.12	24.44	1.84	22.08
Florida	1,248	194.85	201.13	24.64	2.49	19.88
Oklahoma	650	195.42	198.78	24.34	3.07	20.77
Central New York	910	192.78	198.70	24.60	1.65	17.26
Missouri	780	182.59	194.79	25.32	1.15	22.44
Long Island	1,131	189.09	193.44	24.46	.27	18.66
Maine	975	187.40	192.39	24.52	1.43	19.08
Michigan	780	170.14	175.64	24.64	5.26	27.44
All Tests	15,704	197.25	204.19	24.68	2.12	19.45

All Time High Hen Score, Each Breed, in U. S. Standard Tests

Owner	Breed	Year	Eggs	Points	Test
W. A. Seidel	White Leghorn	1941	343	376.25	Texas
J. J. Warren	Rhode Island Red	1938	341	369.55	Storrs
Weber Duck Farm	Barred Rock	1937	334	362.00	Maine
George A. Pearce	New Hampshire	1940	317	344.95	Passaic, N. J.
G. C. Murray	White Rock	1933	307	333.35	Texas
T. D. Brown	White Minorca	1940	301	329.20	Texas
Paul Hansen	Black Australorp	1941	302	326.55	California
Iowa Master Breeders	Rose Comb R. I. Red	1941	289	314.45	Texas
Lindstrom Poultry Farm	White Wyandotte	1941	309	313.65	Pennsylvania
Perry T. Kistler	Barred Rock Crossbred	1935	295	308.55	Pennsylvania
E. J. Covey	Black Minorca	1937	278	294.95	Texas
Raymond Murphy	Jersey White Giant	1939	273	291.05	Missouri
Eriksen's Ancona Yards	Ancona	1937	291	288.00	Storrs
Superior Hatchery	Light Brahma	1941	270	284.45	Texas

(Continued on page following)

All Time High Hen Score, Each Breed, in U. S. Standard Tests

(Continued from page 697)

Owner	Breed	Year	Eggs	Points	Test
S. E. Raymond	Lamona	1941	265	282.80	Storrs
L. C. Gravlee	Silver Laced Wyandotte	1933	250	271.20	Alabama
Sunny Ridge Farm	Jersey Black Giant	1933	244	266.80	Rhode Island
Iowa Master Breeders	Buff Orpington	1940	246	265.80	Missouri
Harry L. Day	Exchequer Leghorn	1934	265	261.55	Florida
Illinois Hatchery	Brown Leghorn	1941	275	260.45	Texas
Famous Poultry Farms	Leghorn Cross	1940	250	257.65	Georgia
Far-A-Way Farm	Buff Rock	1933	239	254.00	New York State
A. E. Hampton	Black Leghorn	1931	262	253.35	Hunterdon, N. J.
Ward's Poultry Farm	Buff Leghorn	1933	241	247.90	Oklahoma
Blue Ribbon Farm	Rhode Island White	1939	225	247.75	Texas
Lindstrom Poultry Farm	Buff Minorca	1941	239	245.45	Texas
Harry L. Phillips	Columbian Rock	1939	224	243.70	Missouri
Far-A-Way Farm	Buff Wyandotte	1931	230	240.05	Alabama
August D. Arnold	White Barnevelder	1934	249	236.00	Maine
John Imhof	Light Barnevelder	1933	227	229.00	Maine
S. H. Palmer	Columbian Wyandotte	1932	231	224.00	Florida
Edward Nowak	Buttercup	1932	225	218.60	Florida
Walter C. Dobe	Andalusian	1934	202	218.00	New York State
Skyland Farm	Houdan	1931	204	215.55	Passaic, N. J.
R. A. Padgett	Speckled Sussex	1931	201	208.40	Texas
Bestcroft	Silver Campine	1936	195	203.05	Hunterdon, N. J.
Capt. I. B. Clarke	Buff Australorp	1936	205	201.25	New York State
Holdenville Poultry Farm	Hamburg	1933	225	192.85	Oklahoma

All Time High Pen Score, Each Breed, in U. S. Standard Tests

Owner	Breed	Year	Birds	Eggs	Points	Test
J. A. Hanson	White Leghorn	1940	13	4041	4283.25	Storrs
T. N. Wilcox	Barred Rock	1941	13	3943	4222.95	Georgia
Harco Orchards	Rhode Island Red	1941	13	3770	4021.20	Storrs
Edward N. Larrabee	New Hampshire	1938	13	3434	3685.30	Storrs
Riley Poultry Farm	White Rock	1940	13	3135	3264.70	Oklahoma
Harvey E. Taylor	White Wyandotte	1940	13	3203	3244.25	Texas
Paul Hansen	Black Australorp	1941	13	3110	3184.25	California
Eriksens Ancona Yards	Ancona	1938	13	3117	3022.00	Storrs
Iowa Master Breeders	Rose Comb R. I. Red	1941	13	2514	2635.50	Texas
T. D. Brown	White Minorca	1938	13	2416	2549.95	Texas
E. J. Covey	Black Minorca	1941	13	2363	2483.35	Texas
Raymond Murphy	Jersey White Giant	1938	13	2271	2447.40	Missouri
Hall Brothers	Barred Rock Crossbred	1937	10	2309	2406.75	New York State
Superior Hatchery	Light Brahma	1941	13	2216	2362.55	Texas
Illinois Hatchery	Brown Leghorn	1941	13	2222	2323.00	Texas
Ward's Poultry Farm	Buff Leghorn	1941	13	2292	2286.80	Oklahoma
Mrs. Maggie Thornton	Buff Orpington	1933	10	2085	2207.30	Texas
S. E. Raymond	Lamona	1939	13	2056	2190.50	Storrs
Lindstrom Poultry Farm	Buff Minorca	1941	13	2173	2144.60	Texas
Donald C. Chandler	Silver Laced Wyan.	1939	13	2121	2126.25	Maine
Far-A-Way Farm	Buff Rock	1933	10	2109	2111.00	New York State
Harry L. Phillips	Columbian Rock	1940	13	1938	2071.65	Missouri
F. V. Dufresne	Jersey Black Giant	1932	10	1887	2024.55	Passaic, N. J.
A. E. Hampton	Black Leghorn	1931	10	2093	1964.15	Hunterdon, N. J.
Blue Ribbon Farms	Rhode Island White	1936	10	2152	1962.85	Texas
Famous Poultry Farms	Leghorn Cross	1940	13	1854	1858.55	Georgia
Harry L. Day	Exchequer Leghorn	1934	10	1854	1835.80	Florida
S. H. Palmer	Columbian Wyandotte	1932	10	1840	1764.65	Florida
Bestcroft	Silver Campine	1936	10	1723	1744.40	Hunterdon, N. J.
John Imhof	Light Barnevelder	1933	10	1710	1680.00	Maine
R. A. Padgett	Speckled Sussex	1931	10	1602	1575.25	Texas
Far-A-Way Farm	Buff Wyandotte	1931	10	1638	1535.00	Alabama
Capt. I. B. Clarke	Buff Australorp	1937	10	1529	1502.80	New York State
Skyland Farm	Houdan	1931	10	1393	1448.30	Passaic, N. J.
Holdenville Poultry Farm	Hamburg	1933	10	1615	1442.00	Oklahoma
Walter C. Dobe	Andalusian	1935	10	1357	1424.15	New York State
D. C. Gilles	Buttercup	1932	10	1393	1366.30	Florida
August D. Arnold	White Barnevelder	1934	10	750	703.00	Maine

Hens Earning 320 or More Points Each for the Year

Owner	Breed	Eggs	Points	Test
W. A. Seidel	White Leghorn	343	376.25	Texas
Rapp's Poultry Farm	White Leghorn	340	373.35	Hunterdon, N. J.
Booth Farms and Hatchery	White Leghorn	344	359.60	Georgia
J. A. Hanson	White Leghorn	331	359.10	Storrs
W. A. Seidel	White Leghorn	328	355.85	Arizona
J. A. Hanson	White Leghorn	327	355.85	Storrs
Foreman Poultry Farm	White Leghorn	334	355.55	Pennsylvania
J. A. Hanson	White Leghorn	323	353.10	Storrs
J. A. Hanson	White Leghorn	328	352.75	Storrs
George M. Heberer	White Leghorn	323	352.40	Texas
Foreman Poultry Farm	White Leghorn	324	352.05	Passaic, N. J.
J. A. Hanson	White Leghorn	326	349.90	California
Foreman Poultry Farm	White Leghorn	322	349.15	Georgia
J. A. Hanson	White Leghorn	331	347.45	Storrs
Guy A. Leader	White Leghorn	324	347.35	Pennsylvania
J. A. Hanson	White Leghorn	319	346.15	Storrs
Imperial Breeding Farm	White Leghorn	338	345.90	Texas
Lindstrom Poultry Farm	White Leghorn	327	345.15	Georgia
Rowley Poultry Farm	White Leghorn	318	344.65	Pennsylvania
Gold Spot Hatchery	White Leghorn	321	344.45	Arizona
Schaffner Poultry Farm	White Leghorn	322	343.20	Florida
George M. Heberer	White Leghorn	327	341.70	Texas
J. A. Hanson	White Leghorn	324	341.60	Storrs
Colonial Poultry Farms	White Leghorn	316	340.85	Maine
Colonial Poultry Farms	White Leghorn	322	340.10	Florida
George M. Heberer	White Leghorn	311	339.30	Florida
Rapp's Poultry Farm	White Leghorn	310	338.10	Hunterdon, N. J.
J. A. Hanson	White Leghorn	329	337.50	Storrs
Foreman Poultry Farm	White Leghorn	321	337.20	Michigan
M. Johnson	White Leghorn	307	336.85	Texas
Schaffner Poultry Farm	White Leghorn	312	336.65	Missouri
Creighton Brothers	White Leghorn	315	336.35	Maine
Thomascello Leghorn Breeders	White Leghorn	310	336.10	Florida
George M. Heberer	White Leghorn	307	335.65	Florida
M. Schubkegel	White Leghorn	313	335.45	Hunterdon, N. J.
J. A. Hanson	White Leghorn	313	335.40	Storrs
Colonial Poultry Farms	White Leghorn	311	334.85	Texas
J. A. Hanson	White Leghorn	306	334.55	Rhode Island
Colonial Poultry Farms	White Leghorn	304	333.60	Arizona
McCoon Poultry Breed. Farm	White Leghorn	312	333.45	California
W. A. Seidel	White Leghorn	305	333.25	Texas
Rapp's Poultry Farm	White Leghorn	323	332.90	Hunterdon, N. J.
J. A. Hanson	White Leghorn	308	332.75	Storrs
W. A. Seidel	White Leghorn	312	332.65	Texas
M. Johnson	White Leghorn	305	332.65	Texas
J. A. Hanson	White Leghorn	305	332.50	Rhode Island
J. A. Hanson	White Leghorn	309	332.45	Storrs
W. A. Seidel	White Leghorn	304	332.45	Texas
Booth Farms and Hatchery	White Leghorn	307	331.20	Georgia
Dublin Poultry Farm	White Leghorn	313	331.15	Georgia
George M. Heberer	White Leghorn	326	331.05	Texas
J. A. Hanson	White Leghorn	309	331.00	Pennsylvania
J. A. Hanson	White Leghorn	312	330.65	Storrs
Nelson's Leghorn Breed. Farm	White Leghorn	317	330.60	Arizona
Pinebreeze Farm	White Leghorn	303	330.40	Florida
W. A. Seidel	White Leghorn	301	330.40	Arizona
J. A. Hanson	White Leghorn	310	330.35	Storrs
George M. Heberer	White Leghorn	303	330.00	Florida
Crescent Farms	White Leghorn	305	329.60	Florida
Guy A. Leader	White Leghorn	304	329.60	Storrs
California Polytechnic Students	White Leghorn	320	329.45	California
J. A. Hanson	White Leghorn	317	329.30	Storrs
Plainview Poultry Farm	White Leghorn	302	329.25	Texas
Bagby Poultry Farm	White Leghorn	305	329.10	Georgia
East Side Leghorn Farm	White Leghorn	343	328.60	Central New York
Fairview Poultry Farm	White Leghorn	310	328.40	Texas
J. A. Hanson	White Leghorn	304	328.25	Storrs
Foreman Poultry Farm	White Leghorn	302	328.25	Texas

(Continued on page following)

Hens Earning 320 or More Points Each for the Year

(Continued from page 699)

Owner	Breed	Eggs	Points	Test
Kauder's Pedigreed Leghorns	White Leghorn	301	328.15	Storrs
Foreman Poultry Farm	White Leghorn	307	328.05	Georgia
George M. Heberer	White Leghorn	304	328.00	Arizona
Guy A. Leader	White Leghorn	300	328.00	Pennsylvania
Lucas Poultry Farm	White Leghorn	304	327.95	Missouri
Foreman Poultry Farm	White Leghorn	308	327.90	Florida
Sand Springs Home Farms	White Leghorn	308	327.90	Texas
Bodine's Pedigreed Leghorns	White Leghorn	311	327.85	Central New York
Mosher Pedigreed Leghorn Fm.	White Leghorn	300	327.75	Western New York
R. N. Depue	White Leghorn	301	327.70	Hunterdon, N. J.
Baker Poultry Farm	White Leghorn	313	327.60	Rhode Island
Colonial Poultry Farms	White Leghorn	304	327.60	Texas
Lone Oak Leghorn Farm	White Leghorn	302	327.50	Florida
J. A. Hanson	White Leghorn	301	327.35	Storrs
Lucas Poultry Farm	White Leghorn	301	327.35	Missouri
James E. Moore	White Leghorn	299	326.95	Arizona
McCoon Poultry Breed. Farm	White Leghorn	300	326.80	California
W. A. Seidel	White Leghorn	302	326.60	Georgia
Foreman Poultry Farm	White Leghorn	307	326.40	Florida
George A. Pearce	White Leghorn	306	326.10	Hunterdon, N. J.
George M. Heberer	White Leghorn	329	326.05	Florida
Foreman Poultry Farm	White Leghorn	304	326.05	Texas
W. A. Seidel	White Leghorn	303	325.90	Georgia
M. A. Dounay	White Leghorn	304	325.40	Hunterdon, N. J.
Babcock's Hatchery	White Leghorn	313	325.35	Georgia
Wm. L. Gilbert Home	White Leghorn	298	325.25	Storrs
Howard Breeding Farm	White Leghorn	312	325.15	California
Schaffner Poul. Fm. & Hatch.	White Leghorn	300	325.15	Georgia
C. B. Davidsen	White Leghorn	301	324.55	Georgia
A. E. Guinn	White Leghorn	303	324.40	Georgia
Creighton Brothers	White Leghorn	303	324.35	Florida
Lone Oak Leghorn Farm	White Leghorn	302	324.05	Georgia
Kauder's Pedigreed Leghorns	White Leghorn	303	323.95	Storrs
G. A. Pearce	White Leghorn	303	323.95	Passaic, N. J.
Colonial Poultry Farm	White Leghorn	320	323.90	Florida
Dryden Poultry Breeding Farm	White Leghorn	296	323.75	California
M. Schubkegel	White Leghorn	301	323.70	Passaic, N. J.
Crescent Farms	White Leghorn	299	323.55	Florida
Creighton Brothers	White Leghorn	310	323.20	Texas
Rapp's Poultry Farm	White Leghorn	299	323.15	Hunterdon, N. J.
W. A. Seidel	White Leghorn	300	322.65	Texas
Foreman Poultry Farm	White Leghorn	299	322.55	Farmingdale, L. I.
Kauder's Pedigreed Leghorns	White Leghorn	303	322.30	Georgia
Baker Poultry Farm	White Leghorn	331	322.20	Central New York
Schaffner Poultry Farm	White Leghorn	294	322.15	Missouri
George M. Heberer	White Leghorn	303	322.10	Texas
Foreman Poultry Farm	White Leghorn	297	322.10	Georgia
J. A. Hanson	White Leghorn	303	322.05	California
Howard Breeding Farm	White Leghorn	318	322.00	California
J. A. Hanson	White Leghorn	303	321.75	Storrs
W. A. Seidel	White Leghorn	295	321.70	Texas
J. A. Hanson	White Leghorn	300	321.60	Passaic, N. J.
Schaffner Poul. Farm & Hatch.	White Leghorn	300	321.55	Georgia
W. S. Hannah & Sons	White Leghorn	311	321.30	Florida
Guy A. Leader	White Leghorn	304	321.30	Pennsylvania
Bagby Poultry Farm	White Leghorn	316	321.25	Georgia
Burr's Poultry Farm	White Leghorn	309	321.20	Pennsylvania
M. Johnson	White Leghorn	293	321.20	Texas
Schaffner Poul. Farm & Hatch.	White Leghorn	296	321.15	Georgia
C. O. Davis	White Leghorn	294	321.15	Texas
Mosher Pedigreed Leghorn Fm.	White Leghorn	304	321.00	Western New York
M. Johnson	White Leghorn	295	320.85	Texas
Guy A. Leader	White Leghorn	294	320.75	Storrs
Ormsby Poultry Farm	White Leghorn	301	320.70	Central New York
McCoon Poultry Breed. Farm	White Leghorn	294	320.70	California
S. W. Hayes Hatcheries	White Leghorn	304	320.65	Missouri
George M. Heberer	White Leghorn	313	320.55	Texas

(Continued on page following)

Hens Earning 320 or More Points Each for the Year

(Continued from page 700)

Owner	Breed	Eggs	Points	Test
Horseshoe Poultry Ranch	White Leghorn	306	320.50	Texas
Rinker Poultry Farm	White Leghorn	309	320.45	Pennsylvania
Shortes Hatchery	White Leghorn	302	320.45	Oklahoma
J. A. Hanson	White Leghorn	296	320.45	Storrs
Baker Poultry Farm	White Leghorn	311	320.30	Rhode Island
Guy A. Leader	White Leghorn	307	320.30	Pennsylvania
W. A. Seidel	White Leghorn	302	320.30	Arizona
Baker Poultry Farm	White Leghorn	304	320.05	Central New York
Foreman Poultry Farm	White Leghorn	298	320.05	Texas
E. B. Parmenter	Rhode Island Red	333	363.95	Rhode Island
G. B. Treadwell	Rhode Island Red	333	362.65	Maine
E. B. Parmenter	Rhode Island Red	335	362.15	Storrs
Clifton C. Hersey	Rhode Island Red	334	360.30	Storrs
J. J. Warren	Rhode Island Red	337	357.80	Western New York
Harco Orchards & Plty. Fm.	Rhode Island Red	332	357.60	Storrs
E. B. Parmenter	Rhode Island Red	330	354.80	Maine
L. D. Bartholomew	Rhode Island Red	322	352.30	Storrs
G. A. Pearce	Rhode Island Red	324	352.05	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	324	351.70	Maine
Missouri Valley Plty. Fm.	Rhode Island Red	325	349.60	Oklahoma
G. B. Treadwell	Rhode Island Red	328	348.45	Storrs
P. E. Steele & Sons	Rhode Island Red	319	346.70	Maine
J. J. Warren	Rhode Island Red	321	345.00	Rhode Island
E. B. Parmenter	Rhode Island Red	320	344.60	Long Island
E. B. Parmenter	Rhode Island Red	311	341.60	Rhode Island
E. B. Parmenter	Rhode Island Red	341	338.90	Long Island
E. B. Parmenter	Rhode Island Red	313	338.65	Paterson, N. J.
Harco Orchards & Plty. Fm.	Rhode Island Red	316	338.50	Storrs
E. B. Parmenter	Rhode Island Red	308	338.15	Rhode Island
J. J. Warren	Rhode Island Red	314	337.60	Oklahoma
J. J. Warren	Rhode Island Red	308	337.60	Long Island
Hillview Poultry Farm	Rhode Island Red	324	337.40	California
Richard H. Gee	Rhode Island Red	344	337.05	Rhode Island
E. B. Parmenter	Rhode Island Red	306	336.25	Rhode Island
R. O. Wagemaker	Rhode Island Red	311	335.95	Missouri
Missouri Valley Hatchery	Rhode Island Red	308	335.35	Missouri
G. B. Treadwell	Rhode Island Red	305	335.30	Pennsylvania
H. J. Hardin	Rhode Island Red	310	334.85	Georgia
E. B. Parmenter	Rhode Island Red	320	333.95	California
J. J. Warren	Rhode Island Red	306	333.60	Georgia
E. B. Parmenter	Rhode Island Red	304	333.60	California
Roberts Poultry Farm	Rhode Island Red	305	333.05	Storrs
G. B. Treadwell	Rhode Island Red	313	332.65	Maine
E. B. Parmenter	Rhode Island Red	304	332.65	Maine
J. J. Warren	Rhode Island Red	305	332.55	Long Island
E. B. Parmenter	Rhode Island Red	311	332.25	Maine
G. B. Treadwell	Rhode Island Red	333	332.20	Pennsylvania
W. H. Wilson	Rhode Island Red	324	331.85	Georgia
J. J. Warren	Rhode Island Red	318	331.85	Paterson, N. J.
H. A. Richards	Rhode Island Red	317	331.65	Rhode Island
Glendale Poultry Farm	Rhode Island Red	305	331.65	Rhode Island
Norman W. Amidon	Rhode Island Red	305	331.50	Rhode Island
E. B. Parmenter	Rhode Island Red	307	331.40	Paterson, N. J.
Peckham Farm	Rhode Island Red	314	331.30	Rhode Island
W. H. Wilson	Rhode Island Red	309	331.20	Georgia
David T. Cohen	Rhode Island Red	303	331.20	Missouri
Crooks Farm	Rhode Island Red	319	331.15	Rhode Island
W. H. Wilson	Rhode Island Red	318	331.10	Georgia
Eugley's Poultry Plant	Rhode Island Red	304	330.60	Maine
Lindstrom Poultry Farm	Rhode Island Red	316	330.55	Missouri
L. D. Bartholomew	Rhode Island Red	304	330.55	Storrs
Crooks Farm	Rhode Island Red	301	330.20	Storrs
J. J. Warren	Rhode Island Red	324	329.20	Pennsylvania
E. B. Parmenter	Rhode Island Red	304	329.15	Georgia
Thomas H. Mettler	Rhode Island Red	302	329.00	California
J. J. Warren	Rhode Island Red	308	328.90	Maine
E. B. Parmenter	Rhode Island Red	302	328.55	Rhode Island

(Continued on page following)

Hens Earning 320 or More Points Each for the Year

(Continued from page 703)

Owner	Breed	Eggs	Points	Test
J. J. Warren	Rhode Island Red	308	328.35	Florida
G. A. Pearce	Rhode Island Red	314	328.05	Passaic, N. J.
G. A. Pearce	Rhode Island Red	307	328.05	Passaic, N. J.
G. B. Treadwell	Rhode Island Red	304	327.65	Maine
C. T. Avery & Son	Rhode Island Red	314	327.25	Pennsylvania
Lindstrom Poultry Farm	Rhode Island Red	302	326.90	Missouri
Crooks Farm	Rhode Island Red	310	326.55	Passaic, N. J.
J. J. Warren	Rhode Island Red	339	326.30	Georgia
Norman W. Amidon	Rhode Island Red	302	326.30	Rhode Island
Harco Orchards & Plty. Fm.	Rhode Island Red	305	326.10	Storrs
Clifton C. Hersey	Rhode Island Red	313	326.00	Storrs
E. B. Parmenter	Rhode Island Red	316	325.60	California
C. T. Avery & Son	Rhode Island Red	316	325.30	Passaic, N. J.
J. J. Warren	Rhode Island Red	308	325.25	Paterson, N. J.
Crandon Farm	Rhode Island Red	333	325.15	Rhode Island
Harco Orchards & Plty. Fm.	Rhode Island Red	310	325.05	Storrs
E. B. Parmenter	Rhode Island Red	321	324.90	Long Island
J. J. Warren	Rhode Island Red	301	324.70	Long Island
Missouri Valley Poultry Fm.	Rhode Island Red	321	324.40	Oklahoma
J. J. Warren	Rhode Island Red	303	324.40	Florida
Hillview Poultry Farm	Rhode Island Red	311	324.30	California
E. B. Parmenter	Rhode Island Red	320	324.10	Rhode Island
E. B. Parmenter	Rhode Island Red	298	323.85	Long Island
To-Lani Farm	Rhode Island Red	310	323.30	Georgia
J. J. Warren	Rhode Island Red	305	323.00	Storrs
Edgar Smith	Rhode Island Red	316	322.95	Maine
L. Schaible	Rhode Island Red	296	322.90	Passaic, N. J.
Oak Mountain Poultry Farm	Rhode Island Red	307	322.65	Georgia
Clifton C. Hersey	Rhode Island Red	316	322.30	Storrs
W. H. Wilson	Rhode Island Red	308	322.25	Georgia
Harco Orchards & Plty. Fm.	Rhode Island Red	297	322.25	Storrs
Raymond P. Potter	Rhode Island Red	294	321.90	Maine
E. B. Parmenter	Rhode Island Red	305	321.70	Western New York
E. B. Parmenter	Rhode Island Red	293	321.70	Rhode Island
E. B. Parmenter	Rhode Island Red	300	321.60	California
Crandon Farm	Rhode Island Red	307	321.50	Rhode Island
J. J. Warren	Rhode Island Red	293	321.50	Maine
Crandon Farm	Rhode Island Red	304	321.40	Rhode Island
E. B. Parmenter	Rhode Island Red	295	321.25	Florida
J. J. Warren	Rhode Island Red	300	321.05	Western New York
To-Lani Farm	Rhode Island Red	317	320.90	Michigan
Glendale Poultry Farm	Rhode Island Red	311	320.85	Rhode Island
W. H. Wilson	Rhode Island Red	309	320.60	Florida
Homestead Farm	Rhode Island Red	300	320.50	Storrs
Alampi Poultry Farm	Rhode Island Red	309	320.30	Passaic, N. J.
E. B. Parmenter	Rhode Island Red	303	320.10	Long Island
T. N. Wilcox	Barred Rock	332	360.65	Georgia
T. N. Wilcox	Barred Rock	326	355.95	Georgia
T. N. Wilcox	Barred Rock	323	351.30	Georgia
T. N. Wilcox	Barred Rock	320	347.45	Georgia
T. N. Wilcox	Barred Rock	322	344.50	Georgia
T. N. Wilcox	Barred Rock	318	339.15	Georgia
David T. Cohen	Barred Rock	307	335.20	Pennsylvania
Dryden Poultry Breeding Farm	Barred Rock	311	333.50	Storrs
T. N. Wilcox	Barred Rock	314	333.40	Georgia
Missouri Valley Poultry Farm	Barred Rock	307	333.35	Texas
Dryden Poultry Breeding Farm	Barred Rock	308	332.80	Missouri
Kingsley Brown	Barred Rock	310	332.60	Storrs
Foster Jameson	Barred Rock	315	329.80	Maine
Booth Farms	Barred Rock	307	329.20	Florida
Dryden Poultry Breeding Farm	Barred Rock	308	329.15	Pennsylvania
Ellsworth V. Stanley	Barred Rock	311	324.30	Pennsylvania
Ebenwood Farm	Barred Rock	301	322.95	Maine
R. C. E. Wallace	Barred Rock	295	322.00	Oklahoma
Dryden Poultry Breeding Farm	Barred Rock	299	320.15	Storrs
Broad Acres Farm	Barred Rock	292	320.15	Storrs
T. N. Wilcox	Barred Rock	315	320.00	Florida

(Continued on page following)

Hens Earning 320 or More Points Each for the Year

(Continued from page 702)

Owner	Breed	Eggs	Points	Test
T. J. Harrold	New Hampshire	327	341.60	Georgia
T. J. Harrold	New Hampshire	325	333.75	Georgia
Ned C. Willoughby	New Hampshire	309	332.40	Florida
A. L. Frees	New Hampshire	311	330.70	Arizona
Goodwin's Poultry Farm	New Hampshire	298	326.15	Storrs
C. D. Cummings	New Hampshire	309	324.95	Georgia
James H. Horne	New Hampshire	302	323.85	Storrs
Joachim Breeding Farm	New Hampshire	295	322.95	Storrs
G. A. Pearce	New Hampshire	313	321.45	Hunterdon, N. J.
T. J. Harrold	New Hampshire	304	320.45	Georgia
Joachim Breeding Farm	New Hampshire	301	320.00	Storrs
Drumm Egg Farm	White Rock	300	322.55	Georgia
Paul Hansen	Black Australorp	302	326.55	California

High Pen, Each Breed, Pennsylvania Hen Test—Lifetime Record

Owner	Breed	Eggs	Points	Class
Schwegler's Hatchery	White Leghorn	8065	8483.60	Three-Year
J. J. Warren	Rhode Island Red	8007	8226.90	Three-Year
Schwegler's Hatchery	White Wyandotte	5561	5806.20	Two-Year
E. B. Parmenter	Barred Rock	5103	5357.85	Two-Year
Pine Top Poultry Farms	New Hampshire	4634	4857.60	Two-Year
Claribel Henault	White Rock	5498	4697.35	Two-Year

California Test Results on Net Income Basis

At the California egg laying contest, which completed its first year on September 22, emphasis is placed on the net income, calculated as shown in the accompanying table, with egg and point records being kept in order that entries may compete with other standard test pens, throughout the country.

Each breeder sends 26 birds, which are divided into two groups for purposes of computing results for the standard 13-bird pen. No replacements are allowed at the California test. (Other laying tests permit replacements during the first two weeks.)

Results of the first test year indicate that hens which earn the greatest number of points may not always earn the greatest number of dollars. Comparing the top three pens in the accompanying table will illustrate that point.

Gain in meat value, a form of income sometimes neglected in commercial operations, is shown here to make up as much as 10 per cent of the net income, which might spell the difference between profit and loss in commercial operations.

Of the pens entered in the California test, 13 were White Leghorns, 6 Rhode Island Reds, 3 Barred Plymouth Rocks, and 1 each Brown Leghorns, New Hampshires and Australorps. Of the top ten pens (from a net income classification), 7 are White Leghorns, and 1 each Rhode Island Red, Australorp and Barred Plymouth Rock.

The management at the test gave every bird entered a rigorous examination in order to prevent the entrance of any infectious diseases. Also, all birds which showed evidences of disease or died during the test year were removed and autopsied. Total mortality for the year was 15.85 per cent; 3.6 per cent below the all-test average.

Ten High Pens, Championship Class (26 Birds), California Test, with comparisons

Owner	Breed	Eggs	Points	Birds Alive	Market Value of eggs	Feed Cost	Income Over Feed Cost	Gain in Meat Value	Net Income
					(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Dol.)
Hogsett Pl. Ranch	W.L.	6,302	6,570.70	26	133.11	46.03	87.08	9.06	96.14
McCoon Pl. Br. Fm.	W.L.	6,646	6,676.80	25	136.01	47.79	88.22	7.47	95.69
E. B. Parmenter	R.I.R.	6,794	7,120.35	24	134.37	51.71	82.66	6.66	89.32
Calif. Poly. Students	W.L.	6,112	6,352.70	26	126.23	49.54	76.69	6.96	83.65
Donsing Br. Fm.	W.L.	5,706	5,988.00	25	117.10	47.20	69.90	8.20	78.10
Paul Hansen	Aus.	5,641	5,875.15	25	114.78	46.53	68.25	9.17	77.42
Fuzzydele Fms.	W. L.	5,631	5,826.25	22	116.42	42.42	74.00	2.76	76.76
Dryden Pl. Br. Fm.	B.R.	6,241	6,518.50	22	122.81	50.38	72.43	2.83	75.26
Hollywood Pl. Fm.	W.L.	5,587	5,660.70	21	113.81	42.32	71.49	2.27	73.76
Dryden Pl. Br. Fm.	W.L.	5,850	6,063.90	21	119.23	49.83	69.40	3.82	73.22
Test Average (25 pens)		5,569.8	5,629.47	22	110.15	45.00	65.08	4.11	69.20

Increasing Feeding Efficiency

Because of the rapid expansion of the poultry industry during recent years, it has become increasingly important to develop and maintain only those birds that will transform feed into poultry meat and eggs at a high level of efficiency. Slow growing birds and poor layers are apt to be more of a liability than an asset, particularly if feed prices are relatively high. Also, the higher the price of feed, the more efficient must the flock be in the utilization of the feed if a reasonable labor income is to be obtained.

Efficiency in the utilization of feed is determined for the most part by the breeding of the birds, the quality of the diet fed, and methods of flock management. The amount of profit obtained from a flock is determined by these three factors, as well as by such other factors as the amount of mortality and the ability to purchase feed and sell poultry products to best advantage.

—Morley A. Jull in Feedstuffs, July 19, 1941.

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Vol. 3, No. 36 December 15, 1941

What of the Future for the Poultryman?

By W. E. GRIMES
Kansas State College

Condensed from a Talk

THE future for the poultryman, similar to the future for everyone else, is, in a large measure, an unknown quantity. However, we may predict the things which may happen, with some assurance that the predictions will be correct in a majority of cases, by considering past experiences, present conditions, and future commitments.

In considering present conditions which may have a bearing on the future of the poultryman, one must take into account general economic conditions in the United States and elsewhere, principally the national defense effort of the United States and the wars in other parts of the world. Industrial activity in the United States has increased more during the present year than in any other year on record. More goods are now being produced than at any previous time in the history of the nation.

With the increase in production has come re-employment of those who were partially employed and employment of many who were unemployed, which has put money into the pockets of people who had less before. This increase in the ability of people to buy goods and services has found expression in more active trade in most products.

Presented at the Fifth Annual Poultry Convention
Manhattan, Kansas, Oct. 31, 1941

The increase in purchasing power has been used to retire debts, to purchase durable goods, such as automobiles, radios, furniture, and to buy larger quantities of immediately consumable goods, such as food.

With this increase in the demand for goods and services has come increasing prices. Prices of farm products have advanced, partly in response to increased purchasing power of the public and partly due to indications by the government that it will attempt to maintain agricultural prices at least at 85 per cent of parity during 1942. The prices of chickens and eggs have advanced, and on September 15 were 142 per cent of 1910-14 averages. Their purchasing power is well above parity and is above the average for all farm products.

Greatly Increased Production

Under the stimulus of relatively high prices, the production of eggs has increased. It is expected that total 1941 production of eggs will exceed 1940 production by 4 to 5 per cent. Production of chicks on farms in the United States this year is 14 per cent larger than 1940. Slaughter of chickens this year will be the largest on record.

It is expected that total egg production during 1941 will be approximately 3.7 billion dozen and that total slaughter of chickens will be near 885 million head. Of the chickens slaughtered, approximately 680 million are farm produced, 150 million are from the commercial broiler industry, and 50 to 60 million head are from non-farm production.

The late hatch of chicks in 1941 has been large and as a result it is expected that marketings will be heavy well into 1942. The federal government has set a goal of 750 million farm-produced birds to be slaughtered in 1942. National goals for egg production in 1942 call for 4 billion dozen. It seems probable that both these goals will be reached.

Plenty of Feed Available

Both egg and chicken production will be stimulated by the relatively abundant feed supplies available and the favorable relationships between feed costs and prices of poultry and eggs.

Under these conditions, we would like to know just what effect increased supplies will have upon prices of poultry and eggs, and whether or not prices will decline under the pressure of such record-breaking increases. Offsetting the increase in production are the increase in consumer purchasing power and the expected purchases of eggs by the government during 1942. Present conditions indicate that eggs will be somewhat higher in price during 1942. The prospect for poultry prices is not quite so bright, as government support does not seem to be as definitely assured as in the case of eggs. However, drastic reduction in the prices of poultry hardly seems possible in view of the expected trend in consumer purchasing power and in the general level of prices.

1942 Should Be Profitable

These factors make the immediate future of the poultryman who is well established in business appear quite favorable. Barring unforeseen events, 1942 should be as profitable (possibly even more so) as 1941. This is the short-run view of the future.

The picture of the short-run period, that is, for 1942, and possibly for 1943, is optimistic. But how about the longer view? How about 1944, 1945, or even later? That is the period that is causing many persons to proceed cautiously at present . . . and it is well that they are proceeding cautiously, for many remember the months and years following the spring of 1920. The aftermath of the spree of 1917 to 1919 was not all cleared away until 1933, 1934, or even later.

After the War—Then What?

Sooner or later, peace of some sort will come to the world. When this time comes, men released from the armed forces of the nation will seek employment in industry. But industry will find its market curtailed by the decrease in defense orders and it will be difficult, if not impossible, to absorb these returning men—just as it was difficult in 1919 and 1920. Also, many persons now employed in defense industries will not be needed in those industries and they, too, will be looking for jobs in industries producing for civilian needs. It seems certain that a period of great economic stress is certain to follow the present disturbing influences.

How about the poultryman in such times? There are certain things to be avoided if one is to be in position to weather such an economic storm, if and when it comes. One should avoid debts that will carry over into the period of readjustment. A debt which appears light at present could easily become as burdensome as some debts did after the World War. The safest answer on which to base decisions concerning debts is to assume that the dark days will come again, and to avoid debts that may become greater than the market value of the security.

Proceed Cautiously

In times of high prices and good incomes there is always the temptation to expand, but experience rises up to plague those who assume that the rainbow of prosperity will last forever. Maybe they think they will get out just before it breaks, but the record of such people is that they do not get out, always thinking that the break is another year or more ahead.

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The increase in purchasing power has been used to retire debts, to purchase durable goods, such as automobiles, radios, furniture, and to buy larger quantities of immediately consumable goods, such as food.

With this increase in the demand for goods and services has come increasing prices. Prices of farm products have advanced, partly in response to increased purchasing power of the public and partly due to indications by the government that it will attempt to maintain agricultural prices at least at 85 per cent of parity during 1942. The prices of chickens and eggs have advanced, and on September 15 were 142 per cent of 1910-14 averages. Their purchasing power is well above parity and is above the average for all farm products.

Greatly Increased Production

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INTENTIONAL SECOND EXPOSURE

The poultryman who is well established in business will, in all probability, enjoy prosperity for the duration of the war; perhaps for a short time afterward. Eventually the day of reckoning will come, and his position then will be envious if he has resisted the temptation to expand on borrowed funds.

Another factor which must be dealt with is the increasing efficiency of the poultry industry. The rate of lay of hens is higher now than at any time in the past. This means more efficient production of eggs, and more efficient production means lower costs. Lower costs in times of restricted prices result in keener competition for the limited markets available. It behooves the poultryman to make sure that he is not one of the high-cost producers who will find the going difficult when the stress of keener competition is felt. The poultry industry will have processing facilities that were not in existence prior to 1939, and these facilities will be clamoring for use. Facilities and equipment on farms will be increased and improved and more people will know how to produce at low cost. These are factors which will be all too evident if and when the present period of artificially—created prosperity comes to an end.

In conclusion, then, the future for the poultryman appears unusually bright for 1942 and as long thereafter as the war and the national defense effort last. When that period is ended, the slow and painful processes of rehabilitation and reconstruction will begin. That, in all probability, will be a period during which the most efficient and the more cautious poultryman will survive his less efficient or more venturesome competitor in the poultry business.

Carotene in Alfalfa Meals

Our tests indicate that the alfalfa meals available to the feed industry today vary widely in carotene content, extremes of from 2.4 parts per million to 200 parts per million having been encountered. If one were mixing a chick starting and growing mash and using an alfalfa meal containing 2.4 parts per million of carotene, he would have to put 62.5 per cent of alfalfa meal in his mash to meet the chicks' requirement, and even this ridiculously high figure would not allow for any carotene losses after the feed was mixed. An alfalfa meal used in poultry feeds should contain at least 50 parts per million of carotene.

When choosing between different lots of alfalfa meal, all of which are above 50 parts per million in carotene content, one should be guided by price in relation to carotene content. If a meal containing 50 parts per million sells for $40 per ton, one containing 100 parts per million is worth approximately $80 per ton as a source of carotene. Conversely, if a meal containing 200 parts per million is selling for $60 per ton, one containing 50 parts per million is worth only about $15 per ton.

The ideal way to buy alfalfa meal, for the person or company that is not in a position to make assays, is to buy from a lot of meal recently sampled and assayed by an impartial laboratory and found to contain a satisfactory amount of carotene. A recent assay is worth more than one made several months in the past, since the carotene content of alfalfa meals decreases under ordinary storage conditions.

—University of Maryland, Official Report of State Feed Inspection Service.

Giants Intended for Capons and Roasters

If people who raise Jersey Giants, of either variety, would follow the instructions of the originator of the breed, poultry packers, receivers, or anyone else handling dressed poultry would not have much cause for complaint.

Jersey Giants were originated for the express purpose of having a special breed for the production of prime capons and heavy roasters, for which purposes they are to be recommended. They should not be considered for any other purpose. That is what the originator of the breed tells his customers.

Jersey Giants are not to be considered as heavy egg producers. Black Giant broilers and fryers are undesirable because their black plumage does not permit clean dressing. White Giant broilers, fryers, and small roasters are undesirable because the green pigmentation of shank shows in the skin of the legs, thighs, and region of the abdomen, and when the birds are dressed and packed many of them have the appearance of having been "green-struck." Yet these birds are healthy and they are edible. They just don't look nice.

An inspector who is not familiar with this peculiar characteristic of young White Jersey Giants may at times condemn these birds that are physically fit in every respect. The green pigment does not show, except in somewhat rare individual cases, in the skin of mature birds. So for large capons and heavy roasters, you really have something in the Jersey Giants.

—G. D. McClaskey, U. S. Egg and Poultry Magazine, August, 1941.

New Ideas Concerning Infertility

By W. F. LA MOREAUX
Cornell University

Reprinted from Poultry, Current Science and Practice

WHEN one considers that the contribution pedigree breeding and progeny testing make to livestock improvement lies in the greater use of animals, particularly sires, of known genetic merit, it is clear that factors controlling the fertility of such individuals are of great importance. The following ideas, or results of experiments, are related to each other only insofar as each may, in some way, suggest means to reduce infertility in the fowl.

Rate of Egg Production

There has been some disagreement concerning the influence of antecedent and current egg production upon infertility. To clarify this problem, an analysis of the incubation records of more than 1,200 hens was made at Cornell to determine the relation between the rate of egg production and the proportion of eggs laid which were infertile. Three different measures of the rate of production were used, and in each comparison those eggs laid at a rapid rate included fewer infertile ones than those laid at a slow rate.

Insofar as rate of egg production is concerned, those details of poultry management which tend to induce maximum production during the incubation season also tend to induce maximum fertility.

Preliminary studies have shown that when high and low-yielding males are placed with large numbers of hens, the males that yield relatively large amounts of semen mate more frequently and fertilize more eggs than do males that yield small amounts of semen. Poultrymen who have a surplus of males at the beginning of the breeding season may well consider yield of semen in selecting those to be placed in the breeding pens. A method of collecting semen for measurement is described in Circular 525, issued by the U. S. Department of Agriculture, Washington, D. C.

Dub the Males

Many poultrymen have dubbed their White Leghorn males to prevent injury from fighting or from frost. Recently, Marlow and Payne of the Kansas Agricultural Experiment Station reported that at five months of age dubbed White Leghorn males weighed 4.3 pounds, whereas normal males of the same age weighed only 3.7 pounds. Still more striking was the difference in the average size of testes in the two groups. Testes of the dubbed males weighed 13.0 grams as compared with only 6.7 grams for the normals.

This suggests that dubbed males should yield more semen. However, recent results obtained at Cornell indicate that body weight, size of testes, and the amount of semen produced are not affected by dubbing unless the males are crowded, or are fed in hoppers with wire guards which catch the combs of undubbed birds, thereby causing reduced consumption of feed and slower growth.

Environmental Temperature

A study of infertility among 71 male and 593 female White Leghorns housed in uninsulated breeding pens at Cornell from 1935 to 1939, inclusive, shows no relationship between average outside temperatures and the proportion of eggs laid that were infertile. Average weekly temperatures ranged from 22.9° F. to 50.1° F. The birds received 14 hours of light each day, beginning two to four weeks before eggs were saved for incubation. Males were dubbed.

These results indicate that when housing is adequate to prevent injury from frozen combs and wattles, additional investment for insulation or heat cannot be expected to improve fertility with weather conditions such as exist at Ithaca, New York.

Spermatozoal Antibodies

It has been reported that infertility or sterility may be induced in the fowl by injecting spermatozoa into the body, and it has been suggested that much infertility may result from the penetration of spermatozoa into tissues of the hen following natural matings. If this were true, marked changes in the current methods of mating chickens would sometimes be required. However, in recent experiments infertility could not be induced by: (1) single subcutaneous (under the skin) injections of 3, 5, or 10 cubic centimeters, equal about 1/3 ounce, of fowl semen; (2) subcutaneous injections of 1 or 3 cubic centimeters of fowl semen twice a week for 10 weeks; or (3) intravenous (into the bloodstream) injections of 0.2 cubic centimeters of fowl semen twice a week for 10 weeks.

Since spermatozoal antibodies are quite unimportant as causes of infertility in the fowl, their occurrence or control may hereafter be disregarded.

It has been noted that when low fertility is obtained from pedigree matings, the male nearly always yields very small amounts of semen. One might suppose, therefore, that if only high-yielding males were used the fertility would be greatly improved.

Cornell University, Ithaca, New York
(Poultry, Science and Practice, October, 1941)

The Rapid Whole-Blood Pullorum Test

By HUBERT BUNYEA
Bureau of Animal Industry, U. S. Department of Agriculture

Condensed from Poultry Supply Dealer

FIGURES gathered by coordinators of the National Poultry Improvement Plan year after year indicate that the ravages of pullorum disease have been greatly reduced by reason of the pullorum control provisions of the plan.

Of the 44 states participating in this phase of the plan, 28 are employing the stained antigen rapid whole-blood test exclusively for the diagnosis of carriers, and 33 use the whole-blood test with or without other methods. In eight of these states the whole-blood test is conducted by veterinarians. In 25 the work is done by lay pullorum-testing agents trained for the work. Twenty-four states employ official testers.

Although certain equipment has come to be regarded as more or less standard to the most efficient work, considerably originality and individualism has been expressed in the types of testing equipment developed, much of which is homemade.

Requirements for Plates

The testing equipment may be complicated or comparatively simple. The few essential items required may be augmented by such further equipment as suits the convenience or ingenuity of the individual tester. One of the indispensable items is a hard-surface testing plate of white glass, clear glass with a white background, white porcelain, or a similar hard substance.

Mirrors Not Recommended

The use of mirrors or paper "testing plates" is not recommended under the National Plan. The mirrors show a confusing double image of the blood reaction, and also cast a glare of direct light into the operator's eyes. Paper "testing plates" tend to develop an irregular surface when wet by the blood and antigen. The reaction may be obscured in the pits caused by wrinkles in the paper.

Porcelain plates may be ruled off, provided the squares are sufficiently large to accommodate smears, which should be one inch in diameter. Rulings, however, are non-essential. The operator quickly develops the ability to spread the smears out over the proper dimensions without them. Rulings are believed by some to prevent the smears from running together, but if the successive test preparations are properly stirred and spread out over an area of one inch (approximately the size of a 25-cent coin), there is little likelihood that the smears will run together.

Copyright, 1941, Baby Chick Company, 1230 Washington Blvd., Chicago, Ill.
(Poultry Supply Dealer, October and November, 1941)

Other essential items of equipment include a stylet for puncturing the bird's vein in collecting the blood, and a standardized loop for taking up the correct amount of blood. The loop is also used to stir the blood and antigen together and to spread them on the plate. The standard blood loops may be obtained through the makers of antigen.

Other Equipment Needed

A bottle of antigen, a standardized antigen dropper, rinse water for the loop, disinfectant for the stylet, wash cloth and polishing cloth for cleaning the plate, a table or shelf on which to rest the testing equipment, a holding table for retaining the birds while under test, retaining coops for reactors, leg bands, banding pliers and scissors, or tin snips for cutting reactors' tail feathers, complete the list of necessary equipment for testing a flock.

Some operators like to have a supply of extra testing plates, so that when one has been filled it may be soaked clean in a pan or pail of clear water and polished dry for re-use. If a testing plate becomes greasy, it may be necessary to use soap to clean it, being careful to rinse thoroughly in clean water before polishing it dry. Blood-antigen smears are sometimes difficult to remove, especially if too much warmth has been used under the plate. Some non-abrasive cleaning powder may be of assistance in such cases. Ordinarily however, washing with clean water and polishing dry with a clean cloth is sufficient.

Where to Set Up the Test

The question is often asked whether testing should be done in the poultry house or outside. The logical answer is, "Wherever the best testing conditions are available." In the poultry house, illumination is likely to be unfavorable, and the atmosphere will usually be laden with dust. A place on the shady side of the building or under the shade of a nearby tree can usually be selected that will provide suitable light for testing. The "dust factor" may also be controlled when testing on the outside by preventing the birds from flapping their wings and struggling, and also by setting up the test so that the feathers and dust stirred up will be carried away from the test plate by the wind.

Night testing is sometimes practiced. There is no particular objection to this procedure, provided adequate illumination can be provided. Testing at night is usually done in the poultry house, close to the roosts, but with the light so arranged that it will not be reflected on the birds at rest. Particular advantages of night testing include freedom from dust and ease of handling the birds, which may be lifted from the roosts and usually returned thereto with little or no excitement, provided they are not disturbed by the lights.

The birds may be kept from struggling by confining them on a holding table while they are being tested and leg-banded. Various types of tables are in use, with leg-stocks of leather-thongs, turn buttons, or screen door bumpers. A coil screen door spring or elastic rubber strap cut longitudinally from an old inner tube may be stretched over the chickens' necks as an added restraint.

Gentle Handling Essential

In lieu of a holding table, the birds may be retained in numbered trap nests, numbered egg crates or in feed bags hung on nails along the wall. There is much latitude for inventive genius to apply itself to the problems of devising suitable catching coops and holding tables. Any device calculated for catching, restraining, or cooping the birds being tested must take into consideration the comfort, safety, and well-being of the bird. The blood-testing operation is no excuse for subjecting the flock to torture or needless discomfort. Much of the loss of egg production sometimes blamed on blood testing can be avoided by gentle handling and refraining from frightening or exciting the flock.

To this end, some testers make a practice of providing their own collapsible sectional wire catching coops, which may easily be transported by truck to the place of operation.

Getting the Blood Sample

The sample is usually obtained by pricking the wing vein near the "elbow" joint. An ordinary sewing needle or graphophone needle in a suitable holder is sometimes used. With this type of stylet, however, the blood often escapes from the vein and gets under the skin, thus blemishing the bird for immediate slaughter if it should be a reactor. Produce men cut the price on such blemishes. A better bleeding instrument is a bevel-pointed stylet resembling a hypodermic needle, which spreads the skin and permits the blood to emerge to the surface. Such a needle can be made from a large darning needle by filing it off and grinding it to a slanting point on a carborundum stone. It can then be finished on an oil stone.

Getting the blood by snipping the comb causes considerable loss of blood and makes a bad impression on the owner of the flock. Birds so bled are more than ordinarily open to infection, particularly fowl pox, if they should happen to be exposed to such.

When the blood sample is taken from the wing, some birds fail to bleed freely. Rather than scrape the

puncture with the loop and get an insufficient sample of partly coagulated blood, it is better to wipe the wing with a clean cloth and make another puncture. If the wing refuses to bleed sufficiently, wipe it clean and go to the other wing.

The correct amount of blood is on the blood loop if it has a bulging drop, after having been immersed in the little pool of blood that collects on the punctured wing. The loop is made from a three-inch length of No. 20 gauge Brown and Sharp rust-proof wire, one end of which is looped so as to fit tightly around the shank of a No. 20 steel metal drill or a 10-penny wire nail.

Getting Correct Amount of Blood

The loop should make a complete ring; otherwise there will be a loss of capillary attraction, and the blood will not stay in the loop. Glass microscope slides, small celluloid paddles and medicine droppers are sometimes employed to pick up the blood, but the correct amount of blood for the test cannot be measured with these instruments.

A handy combination instrument consists of a metal handle several inches long with a screw chuck on each end to hold the bleeding stylet and the loop respectively.

For accurate testing, definite proportions of blood and antigen are mixed together on the plate. The wire loop described above measures from .02 cc to .025 cc of antigen onto the plate.

Although the commercial pullorum disease stained antigen contains preservative ingredients intended to prevent spoilage from bacterial action, every precaution should be observed to avoid contaminating antigen with dust or foreign matter. Antigen should be stored under refrigerator conditions, but under no circumstances permitted to freeze. While in use, the antigen bottle should be kept closed between tests.

Care of Antigen

Antigen is ready for use when it is received from the manufacturer. It should not be diluted with water nor adulterated with any other material. When in use, the antigen bottle should be kept in the shade. At the start of the day, and at intervals during the test, the antigen bottle should be tightly closed and shaken several times to mix the bacteria thoroughly with the fluid part of the antigen. There is an expiration date on every bottle of antigen. A product that has outlived this date should be discarded and a new supply secured.

The bacteria in the antigen are chemically killed in the manufacturing process. There is therefore no possible danger of causing any disease because of the use of this product.

The stained antigen rapid whole-blood test for pullorum disease is very often conducted in connection with flock culling for the selection of breeding stock. Culling is a task of major proportions, and should, when practicable, be done by another operator in order that the tester may concentrate his attention upon the pullorum test. For one operator to perform both jobs is sure to slow up his progress and continuously distract his attention from either task.

Some enterprising testers undertake to perform various jobs while the birds are caught for culling and testing, such as worming, delousing, and vaccinating. If delousing is done with a powder, this job should be done in a location well removed from the testing operations in order to avoid getting dust on the plate.

Making the Test

When making the test, the operator should see that the plate is clean and dry. It should be neither too hot nor too cold. A temperature of 60 to 80° F. is desirable. The plate should, if anything, feel slightly cool to the underside of the wrist. Slight artificial warmth may be used in very cold weather. Excessive heat may influence the reaction and may also cause the blood-antigen mixture to dry on the plate too rapidly.

Only one, or at the most two, separate drops of antigen should be placed on the plate at one time. The too-common practice of placing a row of six to eight drops at one time is undesirable because of the inevitable loss of moisture by evaporation before the row of tests has been completed. A ring of dried antigen forms around the last few drops that tends to obscure the readings.

Measure Antigen Carefully

In drawing up the antigen, air bubbles should be avoided in the dropper. Sufficient material should be taken up to insure of a full drop of antigen for each test. If an incomplete drop is delivered, it should be wiped off, and a correct drop delivered in its place. The operator should not attempt to add to small drops as this will lead to irregular amounts of antigen.

The antigen is placed on the plate first. The measured loop of blood freshly taken from the chicken is immediately stirred into the antigen, 12 to 20 making motions, and spread out over a diameter of about one inch or the size of a 25-cent silver coin. It is advisable to take up the plate and rotate it several times to promote agglutination. Plates that are built into testing cabinets are awkward to rotate as well as to cleanse properly.

The size of the smear influences the ease of reading the reaction. In small smears, the depth of the blood-antigen mixture is too thick to see through. Small smears also tend to run together when the plate is rotated. On the other hand, if the smear is spread out over too large an area, evaporaion may occur before the reaction has occurred.

Special Sanitary Precautions

Pullorum testers would do well to remember that if they are not careful in the details of their work, they may become a means of transmitting diseases from flock to flock. To avoid this, it is a good idea to wear clean overalls on each job, and to disinfect one's footwear upon arriving at and upon leaving premises. Testing tables should be painted or varnished so that they may be satisfactorily cleaned and disinfected when the test is over. If these precautions are taken in the presence of the flock owner, they will help to absolve the testers from any responsibility in case of future outbreaks of disease.

The final step, too often neglected or done in a prefunctory way, is the disinfection of the premises following the removal of the reactors.

In many cases, the responsibility for the prompt removal of reactor birds rests with the pullorum testing agents. The tail-feathers of reactor birds are usually cut, so that in the event they inadvertently (or otherwise) find their way back into the flock, it will be comparatively easy to locate them. The success of the entire pullorum control phase of the plan depends upon faithfulness and thoroughness in the disposal of the reactors.

Multiple Testing

The practice is becoming more prevalent of retesting the flock at intervals during the testing season until the percentage of reactors is reduced to a negligible minimum. By means of the stained antigen rapid whole blood test, this so-called multiple-testing can be carried out much more economically than by the complicated and more costly tube agglutination test.

ENGLISH actors on tour are complaining that they are unable to obtain eggs at all. In many places shopkeepers refuse to supply them when they produce their travellers' ration cards.

Retailers are, of course, allowed a margin to meet such demands, but many of them maintain that the number of breakages and bad eggs is so large that no eggs are left for chance customers.

—Modern Poultry Keeping, London, England, Sept. 14, 1941.

POSTMEN don't like collapsible egg crates, says the Associated Press, reporting the Association of Letter Carriers' annual convention. The mailmen would like to make the use of metal containers compulsory, contending that collapsible containers too often collapse, injuring the mail carrier, his clothing, and other items of mail.

Feathers Bring $1,000 Extra Profit

By GEORGE COOPER

Reprinted from Turkey World

"OUR feather crop should bring us around $1,000 extra profit this year," say Mr. and Mrs. Herb Rosengren, Hawkeye Turkey Farm, Wisconsin. "We have over 4,000 birds to market, and the feathers will bring about 30 cents per bird."

Rosengrens started marketing a few feathers three years ago and were so enthusiastic about their returns that they now save all of their feathers. In fact, the feathers are worth so much that they actually prefer to sell their birds dressed in order to save the feathers. There is only a few cents difference in the prices they charge per pound for live and dressed birds.

Sell Oven-Ready Birds

"If we sell a live bird, the feathers go with it," Rosengren stated. "We would prefer to charge only a few cents extra for dressing the bird and keep the feathers."

Rosengrens specialize in marketing their birds oven-ready. They are located in a rather thickly populated area north of Chicago and have built up a fine business in high quality market birds.

All their birds have been dry picked during the past, and it has been a simple matter for them to save the feathers. They are thinking of installing a mechanical picker, but if this is done, they plan to continue removing the bulk of the feathers before semi-scalding.

Their methods of handling feathers are very simple. Two barrels are placed beside the place where birds are picked. Main tail and wing feathers go in one barrel and all the rest in the other. The feathers are placed in light cotton bags and hung up in a dry place until sold.

Rosengren cautions that the feathers should not be left too long in the barrels, particularly if they are a bit immature, as they may mold and flies get into them.

Rosengrens were at one time nationally known as leading breeders of one of the colored varieties. One of their toms was generally recognized as being one of the finest specimens of the variety, from the standpoint of feathers, that was ever produced.

Big Demand for White Feathers

"Times changed and no one wanted to buy turkeys with beautiful feathers, so we turned our efforts to breeding for better market birds," explained Mrs. Rosengren. "When we became interested in selling feathers, we gradually changed to White Hollands. We produce only a few colored birds now, and these are mainly to supply poults to our customers who insist on the colored varieties. We have a year round trade for market birds. For this reason, we like the whites because we can dress them at any age or weight without so much trouble with pinfeathers. Then, too, that extra 25 to 30 cents profit per bird for feathers was something to consider. Colored feathers bring a little money, but white ones are in greatest demand."

Poultry-Dairy Publishing Co., Mt. Morris, Ill.
(Turkey World, November, 1941)

American Eggs in Britain

Some of the early shipments of eggs to England fared rather badly. The British people wanted shell eggs, rather than dried eggs. They wanted eggs that looked like eggs—and could be fried sunny side up. Well, the eggs had to be shipped in boats without refrigeration, and some of them got a little too warm and reached maturity too rapidly. That gave American eggs a bad reputation with a few persons. The British food men knew they were taking a gamble by shipping eggs in hot weather without refrigeration; they were surprised that things came off as well as they did.

Since those early shipments, eggs have been getting through in good shape. The loss by breakage and spoilage averages only 7 to 12 eggs out of a 30-dozen case, and that's considered good. One thing we did learn is that our American egg crates need to be made stronger if they're going to withstand loading and unloading. Some of our American cheese, particularly that from the Middle West, needs to be packed in stouter cases, to make sure it arrives in good condition. If you'd watch the big derricks hoisting slings of goods from the dock into the hold of a boat—and sometimes letting them down too quickly—you'd understand why good crating is important.

Another thing we learned from the British food authorities is that our American foods should be well marked—to show the British people that they came from America. Probably nothing can do more to buck up the British morale, with less effort, than to see that all the American food carries some sort of identifying mark — something like "Food from America." A statement of that sort appearing before every English family almost every day would be like a friend standing by through the dark hours.

—Paul H. Appleby, speaking at Kansas City, Mo., Oct. 9, 1941.

Re-Vaccinate Turkey Breeders

By W. R. HINSHAW
University of California

Reprinted from Pacific Rural Press

FOWL pox is one of the most important causes of low fertility in turkey breeding flocks. Many turkey growers have learned by sad experience that a single vaccination against fowl pox will not always protect the birds kept for breeders throughout the breeding season.

Our own observations are in keeping with growers' experiences. In our experimental studies of birds vaccinated at 10 to 14 weeks of age, approximately 50 per cent of the turkeys re-vaccinated during the breeding season, or at the end of the season, responded to the second vaccination. Because of the failure of a single vaccination to confer an immunity which will last throughout the breeding season, we recommend that all turkey growers who plan to keep breeders make plans to vaccinate all such birds a second time.

When to Re-Vaccinate

The age at which this second vaccination should be done will depend on many factors. In places where most of the poults to be saved for breeders are hatched from March to June, and first vaccinated in July and August, the second vaccination can usually be made after disposal of the market birds, and just before or as the breeding pens are made up. In sections where turkeys are brooded at all seasons of the year and where the first vaccination is usually done at 8 to 10 weeks of age, it is advisable to do the second job when the birds are 6 to 7 months of age.

Protection is needed most during the winter and early spring months when the flock is being groomed for heavy egg production, and when maximum fertility in males is needed.

Pox Causes Poor Fertility

Fowl pox is one of the most important causes of poor fertility in many turkey flocks. The type of disease which is seen in poult-vaccinated breeding flocks is often less severe, as far as can be seen externally, than in outbreaks in flocks with no immunity. In many instances, skin lesions, if present at all, will be small and they quickly dry up and drop from the bird. The owner may not even observe the skin lesions, but will notice that a few birds have infected eyes and that some of the males have mouth cankers (diphtheretic ulcers). As a rule, the owner of a flock with this type of an outbreak thinks little of it, and attributes the symptoms to nonspecific colds, or to fighting.

Careful examination of previously vaccinated birds in breeding season outbreaks will usually reveal mild skin lesions in a small per cent of the birds. Examination of the mouths, especially of the males, will reveal a larger number of severe cases of canker (diphtheric ulcers), some of which involve the entire mouth parts including the tongue, and occasionally extending into the esophagus. The percentage of the total number of birds affected will vary with the degree of immunity obtained by the first vaccination, and with the virulence of the virus causing the current outbreak.

Pacific Rural Press Co., Los Angeles and San Francisco, Calif.
(Pacific Rural Press, Oct. 18, 1941)

Outbreaks Cut Production

As a rule, a higher percentage of the males show lesions than females, probably due to increased spread by fighting. A severe drop in the percentage of infertile eggs with little or no drop in production is a common observation. In some outbreaks, egg production has also been affected but mortality is seldom experienced.

As stated, the mucous membrane of the eyes seems to have an affinity for the virus. The only external manifestation may be a watery discharge and an indication of discomfort shown by the bird. Closer examination will often show typical soft, yellow, scab-like lesions on the inner part of the eyelid membranes. Such infected birds are immune to commercial fowl pox virus when tested after the disease subsides.

Avoid Pigeon Pox Vaccine

Vaccine prepared from pigeon pox virus should never be used for turkeys. Only vaccines prepared from viruses obtained from chickens or turkeys are recommended. Purchase vaccines from reliable concerns; never use them after the date of expiration given on the bottle.

The site selected for injection of the vaccine is of little importance in regard to production of immunity, but from the standpoint of post-vaccination effects it is extremely important. We recommend the skin of the upper thigh as the most satisfactory site and do not recommend the wing web. Large numbers of severe cases of fowl pox have followed the use of the wing web as the site for vaccination of turkeys. If care is taken during vaccination to prevent undue spread, the injection of the vaccine into the caruncles or skin of the dewlap has the advantage of being easy to observe for "takes" following vaccination. The disadvantages of these sites are their open exposure to other birds, and the danger of spread to adjacent areas of the skin before immunity is established.

Structure of the Egg

To understand what takes place in eggs when they deteriorate in quality and the factors that are considered in the pricing and utilization of eggs, it is desirable to have some knowledge of their structure and of the relationship of one part to another.

In a normal new-laid egg of good quality, the yolk is nearly spherical and of a uniform surface color. On the surface of the yolk, usually the upper side when the egg is broken out, there is a small area known as the germ spot. It is in this spot that embryo development in a fertile egg begins. Consequently, the size and appearance of the germ spot on the yolk, when viewed before the candle, is of importance in determining the grade. The yolk material is enclosed in a covering called the vitelline membrane, which holds the yolk in its normal shape. However, as an egg ages, the yolk tends to take up water from the white, with a consequent enlargement in size, and the yolk membrane weakens as a result, permitting the yolk to assume a more flattened or spread-out shape.

The white, or albumen, of the egg consists of several parts or layers of thick and thin white. The yolk is suspended in the white by a twisted, ropelike mass at each end of the egg, known as the chalaza. The yolk floats and turns easily within the white.

Lining the shell are two membranes commonly described as the inner shell membrane, which is next to the contents of the egg, and the outer shell membrane, which is next to the shell. These membranes are close together and normally do not become separated except at the large end where, as the fresh egg cools and as it ages and water and gas escape from the egg, the two membranes draw apart and the space between them is filled with air.

The shell is the container for the liquid parts within. When new-laid, the egg is coated with a gelatinous covering which tends to seal the pores and gives the shell its bloom.

—Rob R. Slocum in U. S. D. A. Circular 583, "Eggs and Egg Products."

DURING the course of time, poultry has had some ten different spellings: pultrie, pultrye, pultre, pultrerie, pulletrie, pultry, poultrey, powtry, poutry, and the more recent poultry.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, October, 1941.

BOTH Paul Appleby, undersecretary of agriculture, and R. M. Evans, agricultural adjustment administrator, were impressed with the scarcity of eggs following a month's stay in England. They reported seeing only three eggs in that time.

Ventilation of Battery Brooder Rooms

By W. T. COONEY and F. E. PRICE
Oregon State College

Excerpt from a Bulletin

FORCED ventilation of commercial battery brooder rooms is essential for satisfactory operation. The ventilation system must provide the following: (1) adequate fresh air for the chicks, (2) a method of holding the room temperature at 60° to 70° F. during cold weather, as required according to the age of the birds, (3) adequate ventilation to prevent excessive room temperature during warm weather in the late spring or summer, (4) ventilation free from drafts and with uniform temperature throughout the room, and (5) ventilation that is not disturbed by winds from any direction.

Installing Equipment

A forced-ventilation system was installed in the battery brooder room used to conduct brooding experiments at Oregon State College. This consisted of a turbine fan that delivered the fresh air through plywood ducts to the several openings through the ceiling into the room. This equipment was located in the attic. Ceiling deflectors to prevent drafts from the inlets were installed two inches below each ventilation inlet, which caused the fresh air to flow along the ceiling until it settled down in the room. The air was exhausted from the room through outlets with slide doors that could be adjusted to various sizes. These outlets should be installed in pairs, with one near the floor and one near the ceiling. Hoods should be installed over the outlets in the outside wall in order to prevent air from blowing in when strong winds occur.

Chicks' Air Requirements

This ventilating system delivered 8/10 of a cubic foot of air per minute per chick to the battery brooder room. This amount produced excellent conditions in the room and was found very satisfactory. It was equivalent to 6.5 air changes in the room per hour. Several battery brooding ventilation systems have been designed by the Agricultural Engineering Department of the College on poultry farms for brooding 3,000 to 5,000 chicks, and 7 to 8 changes of air per hour have been used and found satisfactory. In all instances, the air is forced into the room with a fan, thus producing a slight pressure in the room, instead of exhausting the

Agricultural Experiment Station, Oregon State College, Corvallis, Ore.
(From "Surplus Leghorn Cockerels as Broilers," Oregon Bulletin 386)

air from the room with a suction fan. The pressure method is necessary to prevent drafts.

This amount of fresh air was adequate to keep down excessive brooder room temperature during the warm days of April and May.

Temperature Control Needed

Some type of automatic temperature control should be installed to hold the room at a desired temperature range of between 60° and 70° F. to prevent excessive cooling due to ventilation during cold weather. This was done in these experiments by automatically shutting off the ventilation, when the temperature went too low, by the use of an electric thermostat.

As soon as the electric heaters in the battery brooders and the heat given off by the birds bring the room to the desired temperature, the thermostat again starts the ventilation. When the room has its own separate ventilation system, the thermostat would be connected so as to control the motor operating the electric fan. The arrangement at the college was different, in that the battery brooder room was ventilated with the same fan as the laying-hen battery room, and, therefore, should not be stopped.

The ventilation for the brooder room was stopped to control minimum temperatures by installing a damper in the ventilating duct. A regular furnace damper-control motor, which was controlled by the thermostat, was used to operate the ventilation-duct damper. This was very effective in maintaining a uniform room temperature. This system has the advantage over the method of stopping the fan, because the damper in the air duct can be set to reduce the air flow instead of stopping it entirely.

Automatic Heat Not Required

An automatic heating system could be used to produce uniform room temperature, but it would be much more expensive. It was not found necessary, however, in these trials, when brooding was done during the fall and spring months. The brooder room must be ceiled on the inside with tight tongue-and-groove lumber or plywood, with building paper over the studding for insulation. Dry sawdust, shavings, or some other type of inexpensive insulation should be used over the ceiling. This is important for both winter and summer use. The heat from the brooders and the heat from the birds is an important factor in maintaining adequate room temperature if properly conserved and utilized.

Cost of Operating Fans

Records have been kept on several battery brooder rooms. The electricity used ranged from 15 to 30 kilowatt hours per 100 chicks per brood. At a 2 cent rate per kilowatt hour, this would amount to 30 to 60

cents per 100 chicks per brood. If the system is properly installed and checked, the lower figure of cost is adequate to do the job.

In planning a ventilating system, the first step is to determine the amount of air required in cubic feet per minute, by multiplying 0.8 times the number of chicks to be brooded in the room. If it should be 2,000 chicks, the air required would be (2,000 X .8) 1,600 cubic feet per minute. The duct should be of sufficient size so that the air velocity in the duct is between 750 and 1,000 feet per minute. If we use a velocity of 800 feet per minute, it would require a duct 1 by 2 feet, or two square feet, in cross-section. The duct should be made of plywood and glued together with small strips in the corners.

The inlets from the overhead ventilating ducts into the room should be large enough to give an air velocity of about 600 feet per minute. In the above system the total cross-section of all room inlets would be [1,600 divided by 600] 2.6 square feet. If the room inlets were 8 by 8 inches, six inlets would be required. The 12 by 12 inch deflectors below the inlets would be necessary to prevent a draft. The outlet ducts should be somewhat larger in total cross-section.

Principal Uses of Eggs

According to a survey made by the Agricultural Adjustment Administration, 91 per cent of all eggs are utilized directly from the shell. Liquid and frozen eggs, used mostly in the baking and confectionery industries, account for about 7 per cent of all eggs. Dried-egg products, also used by bakeries and confectioneries, as well as by other food factories, amount to over 1½ per cent of all eggs consumed. The egg-freezing industry during the last 20 years has undergone rapid development to meet the demand on the part of consumers for prepared foods, particularly bakery products. The egg-drying industry in this country has also been expanding, partly because of unsettled conditions in China, which in the past has been the major source of supply.

Nearly 5 per cent of the eggs produced are wasted because of mishandling either on the farm or while en route to the consumer.

Normally, 4 to 5 per cent of the annual egg production is used for hatching purposes, both for flock replacement and meat production. Most hatcheries are found in regions of heavy egg production.

—C. C. Warren in U. S. D. A. Circular 583, "Eggs and Egg Products."

POULTRY RESEARCH

Factors Affecting Duration of "Rest"

Persistency, as measured by date of or age at last egg before the rest, is the production factor which affects the duration of the first annual rest, report I. Michael Lerner and Lewis W. Taylor of the University of California in Poultry Science (Vol. 20, No. 6).

Length of laying year and annual production are correlated with duration of rest only through their association with persistency, and the correlation of winter rate with duration of rest depends entirely on its correlation with annual production.

Effect of Vitamin D on Eggs of Turkey Breeders

Low egg production and hatchability resulted when no vitamin D was added to a ration deficient in that vitamin, the addition of 100 A.O.A.C. units of vitamin D per 100 grams of ration proved satisfactory, and the addition of more vitamin D than that resulted in no increase in production or hatchability, report L. A. Wilhelm, E. I. Robertson, and M. Rhian on work carried on at the Washington Agricultural Experiment Station in Poultry Science (Vol. 20, No. 6).

Egg size was greatest in a group fed 400 units of vitamin D per 100 grams of feed. A marked and rapid increase in egg production and hatchability occurred when hens previously deprived of vitamin D were allowed to go into the sunlight and had 200 vitamin-D units added to their feed.

Protein Sources for Growing Poults

F. E. Mussehl, E. W. Ackerson, and R. H. Thayer of the University of Nebraska studied 14 combinations of the following protein concentrates: meatscraps, fishmeal, linseed meal, cottonseed meal, corn gluten meal, and dried buttermilk. A combination of meatscraps, fishmeal, expeller process soybean oilmeal, and dried buttermilk yielded the highest growth-promoting value, when used to supplement a base ration consisting of corn, wheat products, oats and alfalfa, says their report presented at the 33rd Annual Meeting of the Poultry Science Association.

For the combinations of ingredients used in this test, 25 per cent protein appeared to be most desirable. Expeller process soybean meal proved superior to the "sample" of solvent process soybean meal used in this test. The emphasis is on the word sample, evidently used advisedly by the authors in order to avoid unjustified generalizations from this test.

—Carl H. Schroeder, Everybodys Poultry Magazine, November, 1941.

Corn Distillers' Dried Grains in Chick Rations

Corn distillers' dried grains with solubles proved to be an excellent sourse of riboflavin and thiamin, and satisfactorily replaced more expensive sources of riboflavin in chick rations, report K. G. Shea, C. R. Fellers, and R. T. Parkhurst of Massachusetts State College in Poultry Science (Vol. 20, No. 6). The protein in the product under test was of good supplementary quality, and it was concluded that the feed may successfully replace substantial amounts of dried skimmilk, soybean oil meal, and fish meal in the standard New England conference chick ration.

Corn Distillers' Dried Grains in Laying Rations

Corn distillers' dried grains with solubles satisfactorily replaced dried skimmilk, all the dried skimmilk and fish meal, or all the fish meal and part of the meat scraps in the New England Conference laying ration, provided the protein content of the ration remained the same, report F. L. Dickens, R. T. Parkhurst, and C. R. Fellers on work carried on at Massachusetts State College in Poultry Science (Vol. 20, No. 6).

Egg production, egg weight, body weight, egg quality, and feed efficiency were comparable under the four rations studied (the standard ration and the three above-mentioned modifications), but hatchability was lessened when substitutions were made.

Feeding Sulphur to Chicks

Feeding flowers of sulphur at the rate of 2 per cent, by volume, in the ration was harmful to 3 and 8-week-old chicks when continued for 22 and 44 days, respectively, reports Deogracias J. Cabrera, Bureau of Animal Industry, Philippine Department of Agriculture and Commerce, in the Philippine Journal of Animal Industry for March and April, 1941.

A difference in response to the sulphur by chicks of different ages was attributed to the stronger physical condition of the older birds and the more efficient conversion of sulphur into H_2S in the younger.

Purebred vs. Crossbreds as Capons and Roasters

Cornish males crossed with White Leghorn females resulted in chicks which grew rapidly and produced market carcasses which graded high, report Earl W. Henderson and J. A. Davidson in the Michigan Quarterly Bulletin (Vol. 23, No. 4). It is suggested that Cornish males might be used in Leghorn flocks outside the regular breeding season to produce frying or roasting chickens. The Cornish males have pea combs, which are dominant, and any chicks from such a cross would be distinctly marked. Chicks would be mostly white, with a few buff or red feathers.

Equine Encephalomyelitis in a Prairie Chicken

The virus of equine encephalomyelitis (western) was isolated from the brain of a prairie chicken shot near Rugby, N. Dak., by a laboratory assistant of the U. S. Public Health Service, according to the Journal of the American Veterinary Medical Association (Vol. 99, No. 776).

Vitamin-A Reserve of Diseased Fowls

With the exception of a bird which died as a result of vitamin-A deficiency, no correlation was found between specific avian disease or internal parasite infestation and the vitamin A and carotene stores found in the liver of the domestic fowl, report V. B. Holland, G. H. Satterfield, and H. C. Gauger of the University of North Carolina and Arthur D. Holmes and Francis Tripp of the E. L. Patch Company, Boston, Mass., in Poultry Science (Vol. 20, No. 6). The vitamin A and carotene content of the livers from 85 diseased birds were examined in making the study.

Effect of Vegetable Oils on Egg Weight and Quality

Eggs from groups of White Leghorn hens fed 4 per cent of either coconut oil, palm oil, peanut oil, refined cottonseed oil, soybean oil, or hempseed oil showed no significant differences in average yolk weight, average ratio of yolk weight to egg weight, or average yolk index, as a result of feeding the oils, report Burt W. Heywang and Harry W. Titus in Poultry Science (Vol. 22, No. 6) on work carried on at the U. S. Department of Agriculture's Beltsville Research Farm.

Yolks from different groups were quite similar in color, but those from hens receiving cottonseed oil were slightly darker than the others. After six months' storage, eggs from all hens except those on cottonseed oil were similar, the latter having deteriorated seriously.

There were no significant differences in egg production or live weight among hens on the various rations.

Blood Spots Change to Meat Spots

Blood spots turn into meat spots when eggs are exposed for a short time to temperatures of 85° F. or above. A. V. Nalbandov and L. E. Card, University of Illinois, attributed this transformation to an oxidative process which can be retarded by the exclusion of air or holding the eggs at 50° F., in their report at the 33rd Annual Meeting of the Poultry Science Association.

Since the occurrence of blood spots and meat spots is reported to be on the increase, it is interesting to note the observation of these authors to the effect that one group of Leghorns under study produced eggs 70 to 80 per cent of which contained blod spots. There is evidence suggesting that the tendency to produce blood spots is, to some extent, hereditary.

—Carl H. Schroeder, Everybodys Poultry Magazine, November, 1941.

New Coccidiosis Treatment

A new method of preventing coccidiosis by vaccination has been announced by the Wisconsin Agricultural Experiment Station at Madison.

The method used at the station is based on an entirely new principle, according to C. A. Herrick of the poultry department. It is not, strictly speaking, one of actual vaccination, but is called that for want of a better name. What is actually done is to expose coccidial oocysts, the germs of the disease, to X-rays, so as to reduce their virulence. Measured doses of treated oocysts are then fed to chicks in order to give the birds a light infection, and thereby allow them to build up immunity to the disease.

Trials involving 700 chicks showed highly satisfactory results. The vaccine was given chicks at ages of from five days to five weeks. More extensive tests are needed to show whether it would be safe or otherwise practical to give the vaccine to chicks as soon as they are hatched. The treatment showed no ill effect on the growth of the chicks treated.

There is no vaccine on the market as yet, and station poultry experts state that it would be practically impossible for flock owners to prepare their own. Preparation of the vaccine is a job which can be done only by a scientific laboratory.

—Successful Farming, September, 1941.

“MY GRATITUDE to the Government for providing me with a gas mask,” writes a “Daily Herald” reader. “It has proved useful when cracking unrationed eggs.

“My sympathy goes out to the poor hens. They obviously did their best two or three years ago.”

—Modern Poultry Keeping, London, England, Sept. 14, 1941.

Diary of a Poultryman

By PERCY S. WHITE
Wooster, Ohio

Condensed from Everybodys Poultry Magazine

Dec. 2 — It looks like winter has set in for keeps. The sun shone for a couple of hours this morning; then it became cloudy. Now we have 3 inches of snow, and more is falling. Temperature is 20 degrees. The water pipes in the barn are drained, and the heated fountains have been filled with boiling water. The water will still be warm in the morning, but we are taking no chances whatsoever with freezing the pipes. It is simple to open the valves and let the water run out. Thawing and replacing pipes is a horse of another color.

The pullets are on the up and up in egg production. This was the highest day yet.

Dec. 4 — Harold is getting to be quite a weather prophet. He predicted that the thermometer might drop to a new low during the night. It did, 2 degrees above zero. Everything was hunky-dory at 12 o'clock last night with the exception of the water in the block house. I thawed the fountain, a 17-foot trough, and filled it with boiling water, but it had crusted over this morning. There was only one thing to do, and that was to fire up the heating system. It didn't take long to have the water circulating after all of the air was out of the pipes.

Dec. 5 — This egg production is getting on the up and up, but the drop in egg prices occurs sometime during the course of human events, and I have an idea that it isn't far away. I just hope that the bottom doesn't drop clean out of the whole works.

Dec. 6 — A letter from Raymond Cray of the Extension Service says that he is bringing a delegation from down along the Ohio River to the auction next Monday. It seems that they are thinking about establishing an egg auction in those parts and this is an inspection tour. He wants me to meet them at the auction, make a pep talk, so to speak, and then escort them out to the ranch. Raymond wants everyone to be impressed with the fact that the only way to make an egg auction g is to offer for sale a top grade product and then have enough of it t attract as many buyers as possibl Well, I try to give the boys at leas one round.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
Poultry Magazine, December, 1941)

Dec. 7 — When Harold scatters chicken manure on pasture land, he scatters it. He has half of the 10-acre field on the old Fike farm covered with about 20 tons to the acre. When a neighbor's cow breaks down the line fence in December for no apparent reason other than the grass being greener on the other side, there must be some relationship between chicken manure and growth of grass.

Dec. 9 — Raymond Cray said the tour today was one of the most satisfactory he has ever conducted. The group toured the building in the forenoon with Ralph Treat. After lunch they attended the sale, then listened to talks by President Lott, Auctioneer Lecky, Director Galehouse, Egg Buyers Finley and Santer, and yours truly. Before going home, at least 90 per cent of them came out to visit the ranch. I think everybody had a good time; I did.

Dec. 11 — All chick fountains and hoppers have been gathered up and centralized. When the weather gets bad, we will clean and disinfect them for next spring. I feel that we should do outside work during our spare time when we are having such fine weather.

Dec. 13 — Friday at that. But it didn't seem to bother the birds in the least. This was the high day so far this fall in egg production. Egg production never gets too high for me. There never is such a thing as over production of eggs on this ranch, for I need the cash, the long green, spondulux, iron men, kale seed, or what have you. Christmas is coming, so is tax paying time, and feed bills the first of the month.

Dec. 14 — Gray eyes always did fascinate me, especially if complimented with pearly teeth and ruby lips. On the other hand, I am perfectly frank to admit that I am filled with terror of the consequences when I see a bird with gray eyes and a foot dragging in the litter. I saw one in this condition today. She looked to be just about the best bird in the pen. They always are; something usually happens to the best ones.

Dec. 16 — No new projects were started this forenoon because Raymond Cray and the second section of the Ohio river bottom tour was scheduled to visit us. An early dinner, a dash to town, a talkfest, return, and a personally conducted tour of our ranch was the schedule for this afternoon. This will be the last tour for this year, but Cray will bring another one sometime during January.

It seems to me that the trend of thought in this chicken business is more and more leaning towards the marketing angle. Both sections of this tour have been really interested in our method of handling eggs such as cooling, cleaning, candling and packing. Such operations seem to be essential for a top quality product.

Dec. 18 — I am beginning to reap the rewards of planting evergreen trees 12 and 15 years ago. Sid Cowan was here a few days ago to arrange for the purchase of Christmas trees. Today he arrived with a large truck and a trailer. We cut and loaded trees all afternoon. A stick of firewood, a stump, and a few branches were all that was left when we finished. The trees were cut as a thinning. In the past, they have provided shade for the young stock.

Dec. 19—Harold trapped five pullets that have been sticking around in the pines on the range. They had been slipping into one of the brooder houses to eat, but usually one of the bunch would let out a squawk if any of us approached. They would fly the coop, so to speak. But he fooled them today, approaching the house from the rear. It didn't take long to get them in the laying house.

Dec. 21 — Ed Amiet was here inspecting R. O. P. cockerels for the breeding flocks Walter Buss and John First did the blood testing after Ed had given the birds the once over and attached the leg bands. There was not a reactor in the lot, and only 12 rejects, which were due to size. It seems as if there are always a few small cockerels as well as pullets.

Dec. 24 — No new projects were undertaken today. We just caught up all the odds and ends. Everything is as snug as a bug in a rug. We are cleaning the barn floors twice a week, usually on Wednesday, but Harold cleaned the boards today. This puts us one day ahead as far as this job is concerned. Donnie and Nancy Jane are sure that Santa Claus will come tonight. I have never heard of anyone shooting Santa Claus, either, so I know he will come. The old pocketbook feels as if he has already been.

Dec. 25 — It has been a green Christmas, and the old timers tell me that this means a fat graveyard. The weather was almost as balmy as a spring day. A couple of big, fat Belgian hare rabbits, oyster dressing, and cranberry sauce, together with all the trimmings, made a good Christmas dinner.

Santa Claus brought Janey a bicycle, and Donnie an electric motor and accessories. The house was decorated and the tree trimmed yesterday afternoon. By and large, we have had a good Christmas. Even the pullets didn't do any picking today.

Dec. 26—We didn't get very much work done today either. I guess it was a let-down from yesterday. Harold and Donnie did some more work on the brooder houses. All the litter has been removed and the houses are getting a good airing.

The school board wanted a ton of fertilizer for the school grounds, so I delivered that this afternoon. Then there is a small load of coarse stuff to go down to the Fike farm tomorrow, and the 1940 brooding season will be officially closed. Nothing to do until next year . . . except get ready to brood chicks again.

Dec. 28 — We didn't clean the boards in the north houses, for we are waiting for freezing weather. The land is too wet to get out on it with the truck. I don't like to see piles of manure around; it belongs on the land. Perhaps by Monday there will be a change in the weather—I hope; I hope; I hope. The pullets are laying fairly well, I think. Of course, everyone else gets a higher production than I ever dream of getting, but I get hardened to hearing about it. It is a fact, however, that there are practically no pee wee eggs or pullet eggs. Most of them grade large, with mediums running a poor second.

Dec. 30 — If 50 per cent of my brain children lived to maturity and were a credit to me, I would have been able to retire from active duty several years ago. We put off cleaning Saturday in the hope of colder weather. The soil didn't freeze, but apparently was firm enough to support the truck and trailer. It wasn't. And I will tell the world that it is no joke to get stuck at the far end of a 10-acre field at dusk with no help in sight. After much jacking around, weeping, wailing, and gnashing of teeth, we got out. Literally skimmed over the field back to the road. If the truck had wings it would surely have taken to the air. I am going to look at the soil cockeyed before that stunt is tried again.

Dec. 31 — I don't like my little truck to have mud all over it. After delivering the eggs to the auction, I took it to the garage for a shampoo. I helped the boys on the job, and it was really washed. This afternoon, Donnie and I gave it a good waxing. The paint was touched up in spots and silver polish was used on the bumpers. It looks as if it has stepped out of a bandbox now.

Kid White is going to repair the blanket for it. I always cover the bed and fenders with the blanket when hauling a load. A little precaution sure saves many a bump and scratch.

The old year is drawing to a close and I am torn between many emotions. The past is known. It is the fear of the unknown that terrifies me. "Hope springs eternal in the human breast."

VIEWS OF THE EDITORS

Concerning Preparations for the Aftermath

All of the wars in which this nation has been engaged or involved have been accompanied by degrees of inflation and followed by periods of adjustment called deflation. The prices for eggs and poultry meats have been quite favorable to producers for the past several months and bid fair to continue throughout the emergency of national defense. It is extremely difficult to think of what may happen tomorrow when the war emergency is over. It is contrary to normal human reactions to think of adjustment in the midst of good prices.

Despite efforts made by the various state and federal agencies to provide plans that will cushion the fall after the emergency program of food expansion has passed, there exists the prevailing opinion among poultry growers that sooner or later a drastic adjustment must take place. Producers realize to a man that the present expansion program is only an emergency program, and that an unknown cycle lies ahead.

The poultry industry is not content to ride the crest of the emergency wave without making a thinking effort to anchor itself during the storm. There is today a minimum of complacency within the ranks of the industry. Preparation for the aftermath which follows the days of boom prices is not being overlooked.

National nutritional conferences have designated eggs as a protective food. The vast machinery back of educational work in human nutrition and the effects of such a nation-wide educational campaign to promote eggs in the first lines of national and family defenses will live long after the emergency is over.

The poultryman is not unaware of the fact that the favorable prices he is now receiving are but the reflections of the emergency. He is fully aware of the benefits which have accrued to his industry. The favorable position of the industry today could not have been purchased by the industry itself with any advertising fund, however large. To hold as much as possible of this industry prestige and endorsement in the years to come is, without question, the greatest problem and most vital opportunity ever afforded the individual poultryman and his industry.

This is no time for an attitude of complacency, apathy, or lethargy. It is not a condition which we can turn over to the mythical "George." We have spent our lives producing a perishable article of foodstuff, giving it questionable care and just hoping that someone would buy it. It is time now to take hold of and support a functioning national organization designed primarily for the kind of work which lies ahead of us.

No poultryman needs but one guess to name the National Poultry and Egg Board as the shock absorber of our business. If we as individuals, agencies, and associations are not willing now, in the days of comparative plenty, to contribute a little coin of the realm for the future support of our business, then we should not cry too loud when we are again tossed about in the economic storm without an anchor. Our major hope lies in maintaining the higher rate of consumption, once lost, now regained, by national endorsement of our product. It is high time that the industry don long trousers and discard its knickers.

It has cost us no money to gain, for the first time, a national prestige for our food product. It may cost us more than we can afford if we are not willing to buy the fuel for the new car handed to us.

This is a day of rapid changes. History of past events does not give us an all-embracing precedent upon which we can safely make predictions of tomorrow's tomorrow. Looking ahead and doing what we can to help ourselves is as good a rule now as any.

—H. E. Cosby, Eggsaminer, October, 1941.

Better Meat Quality Needed

For many years, egg production has been the goal towards which most poultry breeders have been striving. Some breeders, however, have been aiming at that ideal of combining better meat type with high egg production.

Available cost records show that some poultrymen, while attaining a high egg yield, have fallen down on the sale of poultry meat. In some cases this loss has been due to poor marketing practices, and in others to poor meat type birds.

Some of our breeds of poultry have been developed to combine both reasonably high egg production and meat value. If you have not already tackled this problem, here is a worthy goal towards which to strive and here are the points to keep in mind:

(1) Early maturity; (2) rapid and full feathering; (3) fat stored at early age; (4) plump breasted at all ages; (5) uniform size, conformation and fatness at all stages of growth; (6) a maximum per cent of edible meat, and, last but not least, (7) a well dressed appearance. This includes the desired skin color, smooth, obscure feather follicles, and straight smooth keels.

—Rural New Yorker, Nov. 15, 1941.

Price Selling vs. Quality Selling

Morley A. Jull of the University of Maryland said in an address to the recent convention of the Association of American Feed Control Officials:

"Feed manufacturers on the whole are undoubtedly an honest lot and most of them are anxious to provide poultry producers with the best kind of feed mixtures for the particular purpose for which the feed mixture is to be used. On the other hand, probably many feed manufacturers, most poultry nutrition specialists, and practically all feed inspection officials would insist that considerable quantities of low quality feedstuffs and mashes are sold every year.

"Perhaps the inherent difficulty giving rise to this situation is the tendency on the part of all too many poultrymen to buy feed on the basis of price only. Many poultrymen are tempted to buy the lowest priced feed on the market, and as long as this condition exists low grade feedstuffs and feed mixtures will undoubtedly be marketed."

Which came first, the chicken or the egg? It's almost as easy to answer that old puzzler as it is to decide whether the buyer or the seller is responsible for shoddy merchandise at low prices. Dr. Jull's statement that too many poultrymen are inclined to buy feed on the basis of price alone is accurate, but it is equally accurate to say that too many feed men are inclined to sell feed on the basis of price only.

There probably always will be such a situation existing, not only in the feed field but in every other merchandising effort as well. In the feed industry, however, there has been a vast improvement in the past decade or so, and there will be more. Large numbers both of buyers and of sellers are increasingly aware of what the word quality means in feeds. They are more and more becoming educated to the fact that a feed which results in higher production may have a higher cost and yet be more economical.

There still is a long, long way to go, and more of the burden, in our opinion, rests upon the seller of feed than upon the buyer. It is up to the feed man to sell quality, not just talk it. He should know that his product is worth the price, and why, and he should talk to the customer from that basis rather than from the basis of price. A sound selling program is founded on a brand name, company integrity, uniformity, and results. Personal and company service often can contribute much to the winning of good favor. These things may sound trite, but they are the fundamentals of selling. The man who depends only on price is always on the defensive with the buyer. The man who has more than price to offer is much better

equipped with offensive weapons.

The poultryman or other feeder who buys on price alone always is going to be a poor customer. Likewise, the feed man who sells on price alone never is going to be either prosperous or permanent.

—Feedstuffs, Nov. 8, 1941.

Commercial or Home-Mixed Mash?

Many high quality commercial mashes for all types of poultry are available on the market and provide for many poultrymen the simplest answer to the mash question. Other poultrymen prefer to mix their own mashes for various reasons, chief of which is that a home-mixed mash often permits the use of home-grown crops, or of products produced locally and obtainable at relatively low prices. Some poultrymen prefer home-mixed mashes because they like to know the composition of the feeds they use.

It should be remembered, however, that there are great variations in the quality of feedstuffs from which mashes are made and the poultryman who mixes his own mashes must be ever watchful to insure against poor quality ingredients.

In general, the commercial feed mixer is better able to deal with this problem than is the poultryman. No general answer can be given to the question of the relative merits of commercial and home-mixed feeds. It is a question that must be decided for each individual case.

It is a well known fact that development of a satisfactory formula is only the beginning of the preparation of a good feed. There often are tremendous variations in quality among samples of the same feedstuff, and the poultryman who mixes his own feeds must keep this fact continually in mind.

—Herbert R. Bird in Poultry Feed and Feeding Practice, University of Maryland Bulletin 9Z.

❦ IN AN attempt to find a solution to the queue problem (lining-up of egg customers before the store opens), a Cannock, England, trader has posted in his window this notice: "The first six in the queue will not be served."

—Eggs, London, England, July 9, 1941.

❦ POULTRY paralysis causes an estimated national loss of 50 million dollars a year to poultrymen, according to Dr. C. A. Brandly, senior pathologist at the U. S. regional poultry laboratory, East Lansing, Mich.

—Veterinary Medicine, August, 1941.

POULTRY STATISTICS

Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

Geographic Division	Layers per flock Jan. 1	Layers per flock Oct. 1	Layers per flock Nov. 1	Eggs per 100 layers Oct. 1	Eggs per 100 layers Nov. 1	Eggs per 100 layers Aggregate Jan.-Nov.	Eggs per flock Oct. 1	Eggs per flock Nov. 1	Eggs per flock Aggregate Jan.-Nov.
North Atl.									
1930-39 (Av.)	97.5	80.7	87.7	29.2	21.5	457	23.3	18.8	387
1940	97.2	79.2	86.8	33.8	26.2	488	26.6	22.5	406
1941	95.4	80.2	88.3	34.8	28.3	506	27.9	25.0	424
E. N. Cent.									
1930-39 (Av.)	108.8	84.2	93.4	26.6	18.8	418	22.5	17.6	389
1940	110.8	85.8	99.0	30.9	24.3	445	26.6	24.2	421
1941	110.3	92.4	102.5	31.7	26.1	468	29.3	26.7	443
W. N. Cent.									
1930-39 (Av.)	117.6	89.7	97.8	24.4	15.6	381	21.8	15.3	382
1940	118.6	88.2	96.9	28.0	21.4	414	24.7	20.8	423
1941	116.1	94.4	103.6	29.7	21.2	439	28.1	21.9	447
South Atl.									
1930-39 (Av.)	58.6	49.5	52.4	25.5	21.2	399	12.6	11.2	202
1940	59.9	50.4	53.4	29.0	24.8	425	14.5	13.4	222
1941	59.4	51.9	55.3	30.4	26.0	443	15.7	14.5	225
South Cent.									
1930-39 (Av.)	64.4	54.4	57.2	23.9	20.3	381	13.1	11.7	210
1940	65.8	53.3	56.7	27.4	23.7	396	14.6	13.6	220
1941	62.7	56.3	61.7	28.6	22.8	429	16.3	14.2	236
Western									
1930-39 (Av.)	73.2	61.8	67.0	30.9	23.1	456	18.9	15.0	294
1940	73.7	60.7	64.9	34.0	27.9	477	20.2	17.1	301
1941	71.6	61.4	66.5	33.7	27.7	480	20.0	17.5	300
United States									
1930-39 (Av.)	84.0	67.7	73.1	26.0	19.0	405	17.4	14.0	290
1940	85.1	67.2	73.5	29.8	23.9	432	19.8	17.6	312
1941	83.2	70.9	77.6	30.9	24.3	454	21.7	18.8	327

Egg production in October was a record production for the month, 8 per cent larger than in October last year, and 26 per cent above the 10-year (1930-39) average. About half of this increase was due to an increase in the number of layers and the other half to an increase in the rate of lay. The aggregate production for the 10 months of this year was likewise the largest of record, 4 per cent above a year ago and 9 per cent above the 10-year average.

Egg production reached record high levels for October in all parts of the country except in the Far Western states, where it was about the same as a year ago. The 10-year average was exceeded in all areas—from 3 per cent in the West to 38 per cent in the North Atlantic States.

The rate of egg production per layer during October reached a record high of 8.17 eggs for the month, compared with 7.93 eggs last year and 6.79 eggs, the 10-year October average. The aggregate production of 127.6 eggs per layer in the past 10 months was the largest of record, exceeding the layings of last year by 5 per cent and the 10-year average by 9 per cent.

The daily rate of lay on November 1 as shown by sample farm flocks was a record for that date, being 2 per cent higher than the previous record high of last year and 28 per cent above the 10-year average.

Farm flocks during October averaged 290,900,000 layers, which is the largest number for the month since 1930. This number exceeded that of last year by 4 per cent and the 10-year October average by 5 per cent. The number of all potential layers on November 1; i.e., the present laying flock plus pullets not yet added to the laying flock, was 7.4 per cent larger than it was on November 1 last year.

The average number of pullets not yet of laying age in farm flocks on November 1 was reported at 36.0 birds, which is 3.7 birds above the average a year ago and 1.4 birds above the previous record high on November 1, 1939. Present numbers of these potential layers are at a record level in all parts of the country except in the Far Western States, where they are exceeded only by the record of 1939, and in the North Atlantic States, where they are below the level of recent years.

—Comment from U. S. D. A. Poultry and Egg Production Reort.

October egg production of 6,600,000 cases set a new high for the month. This was an 8 per cent increase over October 1940, and a 26 per cent increase over the 10-year (1930-1939) average. Record high levels were reached in all sections of the country except the Far West. The November rate of lay for the country was 2 per cent higher than previous records for that date, and 28 per cent above the November 10-year average.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs and Poultry

Receipts at central western primary markets at mid-November were approximately 90 per cent heavier than a year previous, but had declined 50 per cent since mid-October. Receipts at Pacific Coast primary markets increased moderately during November and showed a gain over a year ago. Receipts at eastern egg auctions increased moderately during November, although the margin over a year ago declined from 27 per cent to 14 per cent during the four weeks ending December 2.

Receipts of shell eggs at the four principal markets were lighter during October and November than for the corresponding months last year. The decline in October amounted to 6.19 per cent. Most geographic sections declined, but some gained. The range was from a 58 per cent decline on the Pacific Coast to a 19 per cent increase in New England. Toward the close of November, receipts showed an increase over a year ago, but for the month, total receipts were approximately 15 per cent below November 1940. November imports from South American countries were considerably lighter than during either September or October, totaling 30,470 cases. This brings the year's total imports from this source, as of November 25, to 257,613 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Receipts of Eggs (cases) at 4 Markets*

Geographic Section	October 1941	October 1940	% change	Jan. to Oct., Inc. 1941	Jan. to Oct., Inc. 1940	% change
New England	47,649	30,141	+ 58.09	453,262	380,935	+18.99
Middle Atlantic	123,786	105,422	+ 17.42	1,880,552	1,800,566	+ 4.44
South Atlantic	10,044	7,539	+ 33.23	195,421	231,678	−15.65
East North Central	109,399	139,260	− 21.44	2,734,746	2,698,666	+ 1.34
West North Central	279,089	287,073	− 2.78	6,314,186	7,033,450	−10.23
South Central	723	598	+ 20.90	74,364	75,431	− 1.41
Mountain	20,287	18,313	+ 10.78	325,910	320,788	+ 1.60
Pacific	28,193	63,690	− 55.73	171,395	409,286	−58.12
Miscellaneous	243	291	− 16.49	3,295	4,476	−26.39
TOTAL	619,413	652,327	− 5.05	12,153,131	12,955,276	− 6.19

Receipts of Dressed Poultry (pounds) at 4 Markets*

Geographic Section	October 1941	October 1940	% change	Jan. to Oct., Inc. 1941	Jan. to Oct., Inc. 1940	% change
New England	2,038,715	1,843,086	+ 10.61	10,685,389	13,168,777	−18.86
Middle Atlantic	3,712,469	4,120,301	− 9.90	50,057,846	43,509,529	+15.05
South Atlantic	4,460.531	2,918,445	+ 52.84	35,758,290	22,861,437	+56.41
East North Central	4,491,878	4,650,417	− 3.41	28,465,871	31,310,405	− 9.09
West North Central	31,598,609	27,924,490	+ 13.16	129,212,819	141,608,890	− 8.75
South Central	843,518	977,511	− 13.71	15,595,589	14,228,397	+ 9.61
Mountain	679,581	236,584	+187.25	4,009,869	3,836,253	+ 4.53
Pacific	657,845	423,111	+ 55.48	9,494,779	11,008,343	−13.75
Miscellaneous	0	0	−	0	128,680	0
TOTAL	48,483,146	43,093,945	+ 12.51	283,280,452	281,660,711	+ 0.58

* New York, Chicago, Philadelphia and Boston.

Receipts of Eggs and Poultry at Central Western Primary Markets

Week Ending	Cases of Eggs 1941	Cases of Eggs 1940	% Chg.	Pounds of Poultry (000 omitted) 1941	1940	% Chg.	Pounds of Young Stock (000 omitted) 1941	1940	% Chg.	Pounds of Fowl (000 omitted) 1941	1940	% Chg.
Nov. 1	45,859	22,155	+106.99	7,592	5,353	+41.82	4,878	3,160	+54.37	2,633	2,123	+24.02
Nov. 8	32,245	17,006	+ 89.61	7,761	5,412	+43.42	4,988	3,242	+53.87	2,701	2,102	+28.48
Nov. 15	27,924	14,978	+ 86.43	7,467	5,402	+38.22	4,629	3,297	+40.42	2,749	2,055	+33.74
Nov. 22	24,520	14,139	+ 73.42	6,680	8,172	−18.26	3,996	4,715	−15.25	2,565	3,364	−23.75
Nov. 29	26,731	11,711	+128.25	6,134	6,673	− 8.06	3,783	3,413	+10.82	2,267	3,170	−28.47

Receipts of Eggs at Pacific Coast Primary Markets

Week Ending	No. of Plants	Cases of Eggs 1941	Cases of Eggs 1940	% Change from Previous Week	% Change from Last Year
Nov. 1	62	50,051	48,673	+0.68	+ 2.83
Nov. 8	62	49,744	47,895	−0.69	+ 3.86
Nov. 15	62	50,759	46,775	+2.04	+ 8.52
Nov. 22	61	53,012	44,999	+4.79	+17.81
Nov. 29	62	53,253	45,912	+0.07	+15.97

Receipts of Eggs at Eastern Egg Auctions

Week Ending	No. of Plants	Cases Received During Week	% Change from Previous Week	% Change from Last Year
Nov. 1	28	28,499	+ 1.34	+27.62
Nov. 8	30	34,400	− 0.07	+24.45
Nov. 15	26	31,288	+ 2.94	+19.66
Nov. 22	26	32,930	− 0.36	+13.72
Nov. 29	27	38,460	+11.35	+16.03

—Compiled from U. S. D. A. market reports.

Egg-Feed Ratios

New York Egg-Feed Ratio

Week Ending	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941	1940	1939	Avg. Egg Price per Doz. (Dollars) 1941	1940	1939	Avg. Feed Cost per Doz. (Dollars) 1941	1940	1939
November 6	5.9	6.0	6.4	.382	.324	.293	2.25	1.93	1.88
November 13	5.3	6.6	6.4	.406	.298	.299	2.25	1.97	1.91
November 20	5.6	6.7	6.6	.408	.297	.289	2.31	1.98	1.91
November 27	5.9	6.5	7.3	.391	.302	.263	2.30	1.97	1.92

—Compiled by N. Y. State Department of Agriculture and Markets.

Chicago Egg-Feed Ratio

Week Ending	Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941	1940	10-Yr. Avg. 1931-40	Price of Fresh Graded Firsts (Dollars) 1941	1940	Cost of Ration per 100 lbs. (Dollars) 1941	1940
Nov. 1	4.55	5.61	4.44	.325	.214	1.480	1.202
Nov. 8	4.39	5.90	4.28	.348	.210	1.529	1.239
Nov. 15	4.14	5.76	4.22	.364	.222	1.508	1.280
Nov. 22	4.02	5.34	4.27	.370	.239	1.489	1.276
Nov. 29	3.99	4.53	4.29	.365	.281	1.460	1.277

Central California Egg-Feed Ratio

	Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941	1940	1939	1938	1937	1936
October	5.83	5.26	6.01	4.43	5.51	5.87
Jan.-Oct.	6.92	8.36	7.18	6.95	8.80	7.24
Year		7.87	7.17	6 50	8.27	7 07

—Data Compiled by Edwin C. Voorhies, University of California.

Egg Prices

Mid-Month Farm Price of Eggs Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	22.8	18.8	16.1	16.0	15.9	15.7	17.0	18.7	21.9	24.7	28.2	26.3
1940	18.3	20.2	15.4	15.0	15.1	14.4	16.4	17.2	21.0	23.7	26.2	26.8
1941	19.7	16.8	16.4	19.7	20.1	23.2	25.6	26.8	30.3	31.8		

November egg prices followed an irregular trend and closed weak. Except for the Pacific Coast, prices on all markets moved upward until mid-November. At that point the trend was reversed. Increasing weakness developed, resulting in sharp breaks toward the close of the month. Average and poor quality stock, including storage, showed most gains and more resistance to declines than top qualities. All markets were sensitive to changes in the volume of receipts of fresh eggs. This situation is not unusual at this season, when the volume of receipts passes the lowest level of the year and starts to increase. Prices on all but the finest grades recovered from the decline of late October and established new highs for the season.

On the Pacific Coast market, November prices for large extras were slightly lower than October averages, but mediums were 1 to 3 cents higher. On all other markets, average prices were 1 to 5 cents higher than for October. Following sharp declines late in November, the closing prices were 1 to 3 cents below the October closing level on finest qualities, and 2 to 3 cents higher on the lower grades.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

1941 Egg Prices at New York City

Kind	Nov. 7	Nov. 14	Nov. 21	Nov. 28	Nov. 28 '40
Mixed Color Firsts	34½	38½	38	35¼-35½	28
Nearby and Midwestern White Premium Marks	42½-45	46½-49	41¼-43¾	38-40½	35½-38
Nearby and Midwestern White Exchange Specials	42	46	40-40¾	37½	35
Pacific Coast Specials	47¼-47¾	49	44-45	39½-40½	38-38¾
Nearby and Midwestern Brown Specials	42	46	43	37½	35

Government Purchases

Purchases of Eggs and Poultry Products by the U.S.D.A.

Week Ending	Shell Eggs	Frozen Eggs	Dried Eggs	Canned Chicken
	Cases	1,000 Pounds	1,000 Pounds	1,000 Pounds
November 1	14,400	———	1,599	1,072
November 8	7,700	———	989	776
November 15	1,600	———	826	280
November 22	4,400	———	2,042	468
November 29	2,000	———	387	430
Jan. 1 to Nov. 29	1,683,000	66,190	35,324	3,026

November purchases by the Federal Surplus Commodities Corporation totaled approximately 14,500 cases of shell eggs and 3,858,800 pounds of dried eggs. No frozen eggs have been purchased since August. From January through November, Government purchases were approximately 107,895 cases of shell eggs, 66,189,340 pounds of frozen eggs and 16,545,500 pounds of dried eggs.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Eggs in Storage

Storage Holdings of Eggs

Kind	Nov. 1 5-Yr. Avg. 1936-40	Nov. 1 1940	Oct. 1 1941	Nov. 1 1941	% Change Nov. '40-Nov. '41
		Thousands			
Shell Eggs (cases)					
SMA and FSCC		717	595	586	–17.9
Commercial	3,827	3,427	4,846	3,271	– 4.6
Total	3,971	4,144	5,441	3,857	– 7.0
Frozen Eggs (lbs.)					
SMA and FSCC			29,300	27,321	
Commercial			149,138	126,301	
Total	105,247	111,815	178,438	153,622	+36.4
Frozen Case Equivalent (cases)*					
Total	3,007	3,195	5,098	4,389	+36.4
Total (cases)	6,978	7,339	10,539	8,246	+12.2

*Frozen eggs are converted on the basis of 35 pounds to the case.

Poultry Meat Prices

Live poultry prices were irregular during November. Heavy fowl, roasters, and turkeys were in good demand and prices moved steadily upward until Thanksgiving. There was a moderate price decline after November 20, but the majority of gains were sustained to the close. Medium weight chickens and broilers declined moderately as trade showed partiality for the large birds. In comparison with November 1940, prices at Chicago the past month were approximately 4 cents higher on heavy fowl, 2 cents higher on light fowl, the same on chickens, 1½ cents higher on broilers, and 5 to 6 cents higher on turkeys.

Turkeys at Chicago moved from 18 cents for young toms and 20½ cents for young hens on November 1 to 19-21 and 25 cents respectively on

Mid-Month Farm Price of Chicken Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Avg. 1930-39	14.0	14.2	14.4	15.0	14.7	14.4	14.1	14.0	14.3	13.7	13.3	12.9
1940	12.0	12.2	12.8	12.9	13.6	13.3	13.6	13.4	13.7	13.3	13.1	13.0
1941	13.7	14.0	14.4	15.7	16.3	16.3	16.8	16.3	16.3	16.0		

November 15. On eastern markets turkey prices began the holiday season at a comparatively higher level and advances prior to the Holiday amounted to only 1 to 2 cents.

Dressed poultry market interest centered largely on turkeys. Prices on roasters advanced slightly during the month at New York; fowl, fryers and broilers were unchanged. Receipts during November were approximately 11 per cent below the same month a year ago. For the 10-day period just prior to the Holiday, receipts were about 12 per cent less than a year ago.

Turkey Prices

Dressed turkey prices for the Thanksgiving market advanced steadily during the active trading period. Prevailing prices ranged from 5½ to 8 cents above last year's levels. Paying prices to producers at the shipping point were approximately 6 cents higher than a year ago. Receipts were lighter than expected and less than a year ago. There was a strong demand, which cleared all arrivals promptly, except in some instances the heavier weights were inclined to drag. The situation generally was more satisfactory than any Thanksgiving turkey market experienced for several years.

Trading on U. S. prime young hens at New York began at 29-29½ cents, and young toms 27-27½ cents. Prices advanced steadily under light receipts and strong demand with the result that most trading at New York was accomplished within a price range of 31 to 33 cents for prime young hens and 30 to 31½ cents for prime young toms under 16 pounds. Chicago prices for prime quality began at 28-28½ cents and 26-27 cents on young hens and young toms, respectively. Prices reached 30 cents on young hens and 29-29½ cents for young toms up to 16 pounds. Heavier toms ranged down to 25 to 26 cents, according to weight.

There was a marked difference in the price relationship between weight classes this year as compared with November 1940. A wide spread existed a year ago which stimulated the demand for heavier birds. This demand continued during the storage season to a point where heavier birds generally were quoted higher than the lighter weights. As the present season got underway this situation was readjusted but not soon enough to prevent a drag in sales of the heavier weights. The differential increased to a maximum of 5 cents toward the close, which was about the difference prevailing a year ago.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Poultry in Storage

Storage Holdings of Poultry

Kind	Nov. 1 5-Yr. Avg. 1936-40	Nov. 1 1940	Oct. 1 1941	Nov. 1 1941	% Change Nov. '40-Nov. '41
	Thousand Pounds				
Broilers	13,204	9,874	11,820	13,419	+35.9
Fryers	9,256	10,583	8,922	14,397	+36.0
Roasters	14,701	16,571	12,934	24,183	+48.3
Fowls	18,889	28,931	20,613	29,745	+ 2.8
Turkeys	6,625	11,870	9,171	8,097	−31.8
Ducks	9,040	10,821	12,601	11,114	+ 2.6
Miscellaneous	18,759	15,836	12,737	15,329	− 3.3
Unclassified		9,771	7,903	11,787	+20.6
Total	90.474	114.257	96.701	128.071	+12.0

Hatchery Operations

Production by commercial hatcheries in October totaled 21,406,000 chicks, a record for that month, the U. S. Department of Agriculture reports. It was 60 per cent larger than the production in October last year and 56 per cent above the record October production in 1939. Hatchings during the first 10 months of this year exceed 1,000,000,000 chicks. The annual total is likely to be around 1,050,000,000, which would exceed that of last year by 27 per cent and the previous high production of 900,303,000 in 1939 by 15 per cent.

Regions showing the largest gains in chicks hatched during October are the West North Central states, with an increase of 126 per cent; the South Central states, with 106 per cent; the Middle Atlantic states, 90 per cent; the Mountain states, 71 per cent; and the Pacific Coast states, 61 per cent. In the New England and South Atlantic states, which produce over one-half of the total October hatch, the increases were 55 per cent and 19

Eggs Set by Commercial Hatcheries

Geographic Divisions	Oct. 1938	Oct. 1939	Oct. 1940	Oct. 1941	% chg. from Oct. 1940	Jan.-Oct. Inc. 1940	Jan.-Oct. Inc. 1941	% chg. from 1940
			Thousands					
New England	3,618	3,864	3,794	4,932	+ 30	64,385	84,787	+32
Middle Atlantic	1,597	1,909	1,355	2,642	+ 95	105,976	119,798	+13
South Atlantic	3,507	5,058	6,701	8,644	+ 29	98,730	132,450	+34
E. N. Central	1,873	1,770	1,788	2,557	+ 43	362,014	437,208	+21
W. N. Central	1,954	1,521	818	1,906	+133	361,715	478,530	+32
South Central	2,826	3,031	2,990	5,920	+ 98	112,327	151,094	+35
Mountain	105	120	127	301	+137	23,294	28,458	+22
Pacific	2,846	2,786	2,240	3,405	+ 52	65,735	83,226	+27
United States	18,326	20.059	19.813	30.307	+ 53	1.194.176	1.515.551	+27

per cent, respectively. These two regions were the only ones that last year reported an increase over October 1939.

Practically all of the increase in chicks hatched during the past several months has been for commercial broiler and fryer production. Receipts of ice-packed poultry on the Eastern markets during the past several months have been unusually large. There also has been a very heavy movement of poultry off farms. Receipts of poultry at primary and central markets during the past six weeks probably have been the highest of record for that period. Poultry prices have declined under the pressure of these heavy receipts and the poultry-feed price ratio is now less favorable than a year ago and below the 10-year (1930-39) average.

The present unfavorable feed-chicken ratio, if continued, probably will cause a weakening in the demand for chicks for commercial broiler and fryer production. At present, however, there is no evidence of a slower demand. Advance orders are considerably ahead of those of a year earlier.
—Comment from U. S. D. A. Monthly Hatchery Production Report.

Chicks Hatched by Commercial Hatcheries

Geographic Divisions	Oct. 1938	Oct. 1939	Oct. 1940	Oct. 1941	% chg. from Oct. 1940	Jan.-Oct. Inc. 1940	Jan.-Oct. Inc. 1941	% chg. from 1940
			Thousands					
New England	2,769	2,463	2,834	4,393	+ 55	45,308	63,152	+39
Middle Atlantic	1,016	1,339	827	1,571	+ 90	68,221	79,647	+17
South Atlantic	2,272	3,430	4,084	4,860	+ 19	70,226	94,481	+35
E. N. Central	1,248	1,070	934	1,494	+ 60	228,827	280,033	+22
W. N. Central	1,343	1,428	919	2,077	+126	244,215	309,117	+27
South Central	1,848	1,975	2,119	4,365	+106	78,649	105,114	+34
Mountain	70	77	87	149	+ 71	14,958	18,787	+26
Pacific	1,911	1,983	1,551	2,497	+ 61	44,513	56,193	+26
United States	12.477	13,765	13.355	21.406	+ 60	794.917	1.006.524	+27

Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

Geographic Divisions	Chicks booked Nov. 1	% Light breed hatched		% Heavy breed hatched		Sexing
	% change from Nov. 1, 1940	Oct. 1940	Oct. 1941	Oct. 1940	Oct. 1941	% change from Oct. 1940
New England	+170	2	2	98	98	– 37
Middle Atlantic	+194	5	6	95	94	+200
South Atlantic	+ 97	1	–	99	100	—
E. N. Central	+ 47	9	11	91	89	+ 38
W. N. Central	+ 97	18	24	82	76	+181
South Central	+ 33	5	14	95	86	+275
Mountain	+ 31	9	28	91	72	—
Pacific	+ 86	39	40	61	60	+116
United States	+124	10	12	90	88	+108

Egg Breaking Operations

Liquid egg production by commercial egg-breaking plants in October was by far the largest on record for that month, the U. S. Department of Agriculture reports. Production was estimated at 18,406,000 pounds, compared with 655,000 pounds in October last year. The present high rate of production is directly related to the Government's program of obtaining dried eggs for export under the Lease-Lend Act. Approximately 82 per cent of the total liquid egg production in October was dried.

Reports from 14 firms that dried eggs in October showed a production of over 200 times that of October last year—5,003,348 pounds compared with 23,889 pounds. The country's production facilities for drying eggs are adequate now for an annual production of over 100,000,000 pounds. Approximately 135,000 cases of storage shell eggs were used by the firms reporting drying operations in October—27 per cent of the total volume of eggs used for drying. With the production of shell eggs approaching the low point of the year, even greater amounts of storage shell eggs probably will be used during November and December. Only relatively small quantities of frozen eggs have been dried so far. The firms reporting

Dried Egg Production, October 1940-41

Commodity	Total Reported October 1941	Same Firm Comparison		
		Oct. 1940	Oct. 1941	% change Oct. '40-Oct. '41
	Pounds		Pounds	
Whole	4,277,155	0	4,277,155	
Albumen	200,417	6,879	200,417	+2,813
Yolks	525,906	17,010	525,906	+3,081
Total	5,003,478	23,889	5,003,478	+20,845
Firms reporting	14		14	

Liquid Egg Production, October 1940-41

		October 1940	October 1941	% change Oct. '40-Oct. '41
		Thousand Pounds		
Whole eggs		373	16,142	+4,228
Mixed eggs (plain)		47	129	+ 174
Mixed eggs (emulsions, also with sugar, salt, etc.)		45	55	+ 22
Egg whites (all descriptions)		93	1,123	+1,108
Egg yolks packed	Without salt, sugar, etc	86	515	+ 499
	With sugar	11	166	+1,409
	With salt	—	276	—
	All yolk emulsions, including glycerine	—	—	—
Total		655	18.406	+2,710

stocks of dried eggs on November 1 showed that out of total of 6,674,990 pounds, only 324,036 pounds remained unsold.

Liquid egg production for October, estimated at 18,406,000 pounds, set a new high record. During October last year only 655,000 pounds were produced. The high rate of production is directly related to the Government's program for obtaining dried eggs for export. Approximately 82 per cent of the liquid eggs produced were converted to dried eggs. There were 135,000 cases of storage eggs broken out during October, which was 27 per cent of the total opened. Relatively small quantities of frozen eggs have been dried.

The Federal Surplus Commodities Corporation accepted offers on 12,686,600 pounds of dried eggs in October. Offers accepted from November 1 through November 13 have totaled 1,816,000 pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Egg and Poultry Exports and Imports

Exports of Eggs and Poultry

Commodity	September		Jan. to Sept., Incl.	
	1941	1940	1941	1940
Eggs in shell (Doz.)	1,106,286	227,094	22,936,940	3,593,248
Egg Products, Frozen, Dried, etc. (lbs.)	6,903,260	14,185	23,287,874	127,189
Live Poultry (lbs.)	5,555	4,983	73,676	87,036
Dressed Poultry (lbs.)	224,108	85,973	1,979,082	1,086,985

Imports of Eggs and Poultry

Eggs in Shell (doz.)	2,291,807	18,865	3,018,018	160,554
Whole Eggs, dried (lbs.)	43,000	11,700	43,000	40,950
Whole Eggs, frozen (lbs.)	265	0	354	167
Yolks, dried (lbs.)	152,400	380,000	1,511,194	1,727,765
Yolks, frozen (lbs.)	0	420	11,524	420
Albumen, dried (lbs.)	56,400	33,200	223,692	249,800
Albumen, frozen (lbs.)	0	0	0	0
Live Poultry (lbs.)	127,817	124,393	1,331,262	1,039,320
Dressed Poultry (lbs.)	57,577	6,180	356,446	308,963
Prepared Poultry (lbs.)	4,724	3,050	203,997	230,725

One Egg a Day

A single egg supplies from 3 to 16 per cent of the daily requirements of all except one of the nine essential nutrients that are most likely to be deficient in the average human diet. The one exception is vitamin C, which is readily supplied by tomatoes and citrus fruits.

—American Poultry Journal, December, 1941.

Causes of Crooked Breast Bones

Those who raise birds for breeding purposes and poultrymen who sell dressed poultry are concerned about the prevalence of crooked breast bones. Birds which are placed in the breeding pens should have straight breast bones, in order to produce stock with this character. Birds sold for table purposes bring a lower price if they have crooked breast bones.

In attempting to prevent this condition, one must know something about the cause of it. There is evidence to show that inheritance is responsible for some of the crooked bones found in poultry. Under the same feeding and management conditions, it is not uncommon to find that some birds in a given flock have crooked bones, while other show no such tendency. Selection and breeding is the answer to this part of the problem.

Dr. R. T. Parkhurst suggests that a deficiency of the antirachitic factor is another cause of crooked breast bones. He suggests that in some cases, there may be plenty of vitamin D present but the ration may be lacking in calcium and phosphorus. The use of wheat bran, meat scrap, fish meal, and milk products will usually take care of the phosphorus requirements.

Here at the Institute, oyster shells are fed growing birds as well as laying stock. The small size is given the birds in separate feeders when they are a few days old and later they eat the larger size. Thus, if some of the birds require more calcium than is found in the mash mixture, it is readily available to any bird at any time. The least amount of cod liver oil (or feeding oil) that should go into the growing ration is 1 per cent of a U. S. P. oil. It must be noted that both vitamin D and minerals are needed for birds to produce normal bones.

If birds spend a great deal of time on narrow roosts and lack vitamins or minerals, the condition is aggravated. Roosts should be at least two inches wide; otherwise, there will be a tendency towards crooked breast bones, because a large part of the bird's weight is resting on a narrow perch. Birds which roost in trees probably show a greater tendency to crooked breast bones than those which roost on a 2 by 2 or a 2 by 3 perch.

It does not seem probable that too early roosting is a factor in this connection.

—D. H. Horton. Farmingdale, Long Island, Institute of Applied Agriculture, Press Bulletin, Sept. 15, 1941.

FOUR CITIES—New York, Boston, Chicago, and Philadelphia—receive 39 per cent of their eggs by truck, the National Highway Users Conference reports, while 69 per cent of New York City's live poultry receipts arrive by truck. The figures are for 1940.

RESULTS OF LAYING TESTS

Average production of the 15,119 pullets entered in the 16 standard tests reporting for October was 16.80 eggs and 15.64 points, almost one egg, and more than one point, greater than last year's first month average.

J. J. Warren's Rhode Island Reds at Storrs led all test pens on November 1, earning 366 eggs and 358.70 points during October. Three other Warren pens are among the top 20 for the country, a pen at Long Island standing second nationally.

Kauder's Pedigreed Leghorns lead the light breeds, a Pennsylvania pen marking up 336 eggs for 342.95 points during the initial month's competition in the 1941-42 test.

High hen for the month was a George Vowell White Leghorn at Arizona, which shelled out 30 eggs for 32.95 points. Eugley's Rhode Island Red at Maine earned 32.65 points on 31 eggs to top heavy breed entries.

Arizona is leading in test standings, with Georgia, Storrs, and Hunterdon, N. J., all less than one point per bird behind.

Average egg weight is significantly higher than it was during the first month in the 1940-41 test, but mortality was slightly greater, being .39 per cent this year and .36 per cent a year ago.

Because of a serious accident, to two members of the office force, no report was submitted by the Missouri contest. As a result, the averages given in the compilations below are not truly indicative of national results.

Twenty High Pens, All Breeds, to Nov. 1—(31 Days)

Owner	Breed	Eggs	Points	Test
J. J. Warren	Rhode Island Red	366	358.70	Storrs
J. J. Warren	Rhode Island Red	354	343.20	Long Island
Kauder's Pedigreed Leghorns	W. Leghorn	336	342.95	Pennsylvania
Howard Woodward	White Leghorn	341	339.30	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	W. Leghorn	332	337.20	Georgia
Crescent Farms	White Leghorn	321	336.50	Florida
W. H. Wilson	Rhode Island Red	332	335.55	Georgia
E. B. Parmenter	Rhode Island Red	328	335.35	Storrs
Harco Orchards	Rhode Island Red	328	335.30	Storrs
Peckham Farm	Rhode Island Red	344	334.90	Rhode Island
J. J. Warren	Rhode Island Red	360	334.75	Storrs
H. J. Hardin	Rhode Island Red	330	334.55	Georgia
E. B. Parmenter	Rhode Island Red	327	332.70	Rhode Island
E. B. Parmenter	Rhode Island Red	348	331.25	Passaic, N. J.
Rapp's Poultry Farm	White Leghorn	336	331.25	Hunterdon, N. J.
J. J. Warren	Rhode Island Red	341	329.70	Georgia
George A. Pearce	New Hampshire	336	329.65	Passaic, N. J.
D. I. Goodenough	Rhode Island Red	323	328.90	Storrs
H. J. Hardin	Rhode Island Red	350	328.80	Georgia
Kauder's Pedigreed Leghorns	White Leghorn	335	328.80	Storrs

High Pen in Each Test to Nov. 1—(31 Days)

Owner	Breed	Eggs	Points	Test
J. J. Warren	Rhode Island Red	366	358.70	Storrs
J. J. Warren	Rhode Island Red	354	343.20	Long Island
Kauder's Pedigreed Leghorns	White Leghorn	336	342.95	Pennsylvania
Howard Woodward	White Leghorn	341	339.30	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	White Leghorn	332	337.20	Georgia
Crescent Farms	White Leghorn	321	336.60	Florida
Peckham Farm	Rhode Island Red	344	334.90	Rhode Island
E. B. Parmenter	Rhode Island Red	348	331.25	Passaic, N. J.
Gold Spot Hatchery	White Leghorn	326	326.65	Arizona
J. J. Warren	Rhode Island Red	330	326.10	California
J. J. Warren	Rhode Island Red	324	325.25	Maine
J. J. Warren	Rhode Island Red	331	324.10	Western New York
Bodine's Pedigreed Leghorns	White Leghorn	332	317.60	Central New York
Booth Farms & Hatchery	Rhode Island Red	328	315.25	Oklahoma
W. A. Seidel	White Leghorn	333	313.55	Texas
Fisher Orchards	White Leghorn	309	293.00	Michigan

High Pen in Each Breed to Nov. 1—(31 Days)

Owner	Breed	Eggs	Points	Test
J. J. Warren	Rhode Island Red	366	358.70	Storrs
Kauder's Pedigreed Leghorns	White Leghorn	336	342.95	Pennsylvania
George A. Pearce	New Hampshire	336	329.65	Passaic, N. J.
Dryden Poultry Breeding Farm	Barred Rock	334	318.05	Storrs
Harvey E. Taylor	White Wyandotte	285	269.35	Texas
Riley Poultry Farm	White Rock	288	262.60	Storrs
Raymond S. Thomas	Ancona	262	244.20	Pennsylvania
Dryden Poultry Breeding Farm	Barred Cross	258	235.35	California
Ernest Pedigo	Australorp	191	185.60	Arizona
Maine Test	Australorp, Game Cross	170	157.30	Maine
Miami Chick Hatchery	Buff Rock	160	148.00	Michigan
Horne's Hatchery	Black Minorca	136	138.60	Texas
Maine Test	Rock-Red Cross	136	123.55	Maine
Imperial Breeding Farm	White Giant	118	111.25	Maine
T. D. Brown	White Minorca	103	98.80	Texas
Henry F. Waitt	Buff Minorca	106	90.30	Maine
Charles A. Richardson	Buff Leghorn	78	62.95	Hunterdon, N. J.
Philip Maddux	Black Leghorn	75	61.50	Long Island
Wellington Wells	Silver Laced Wyandotte	71	56.60	Maine
Iowa Master Breeders	Buff Orpington	37	29.90	Texas
F. G. Romance	Partridge Poultry Rock	16	14.35	Florida

High Hen in Each Breed to Nov. 1—(31 Days)

Owner	Breed	Eggs	Points	Test
George Vowell	White Leghorn	30	32.95	Arizona
Eugley Poultry Plant	Rhode Island Red	31	32.65	Maine
Dryden Poultry Breeding Farm	Barred Rock	30	31.65	Storrs
Ebenwood Farm	New Hampshire	29	30.30	Rhode Island
Paul Hansen	Australorp	28	27.90	California
Kalerok Farm	White Rock	26	27.65	Rhode Island
Harvey E. Taylor	White Wyandotte	27	26.30	Oklahoma
Dryden Poultry Breeding Farm	Barred Cross	28	26.20	California
Raymond S. Thomas	Ancona	24	24.55	Passaic, N. J.
Imperial Breeding Farm	White Giant	25	23.50	Maine
Maine Test	Rock-Red Cross	23	23.35	Maine
Maine Test	Australorp-Game Cross	24	23.20	Maine
Henry F. Waitt	Buff Minorca	22	20.20	Maine
T. D. Brown	White Minorca	21	19.95	Texas
Wellington Wells	Silver Laced Wyandotte	23	19.30	Maine
Miami Chick Hatchery	Buff Rock	18	18.80	Michigan
Horne's Hatchery	Black Minorca	17	18.45	Texas
F. G. Romance	Partridge Plymouth Rock	16	14.35	Florida
Iowa Master Breeders	Buff Orpington	17	12.90	Texas
Philip Maddux	Black Leghorn	16	12.50	Long Island
Charles Richardson	Buff Leghorn	14	11.90	Hunterdon, N. J.

High Hen in Each Test to Nov. 1—(31 Days)

Owner	Breed	Eggs	Points	Test
George Vowell	White Leghorn	30	32.95	Arizona
Eugley Poultry Plant	Rhode Island Red	31	32.65	Maine
Howard Woodward	White Leghorn	30	32.15	Hunterdon, N. J.
E. B. Parmenter	Rhode Island Red	30	32.05	Passaic, N. J.
J. J. Warren	Rhode Island Red	31	31.95	Michigan
J. J. Warren	Rhode Island Red	31	31.85	California
Harco Orchards	Rhode Island Red	30	31.85	Storrs
E. B. Parmenter	Rhode Island Red	29	31.60	Georgia
Pine Top Poultry Farms	Barred Rock	29	31.55	Rhode Island
Orchard Hill Farms	Rhode Island Red	29	31.30	Western New York
Bryan J. Snell	White Leghorn	28	30.50	Pennsylvania
Crescent Farms	White Leghorn	28	30.50	Florida
J. J. Warren	Rhode Island Red	29	30.25	Long Island
Creighton Bros.	White Leghorn	29	29.75	Central New York
Kauder's Pedigreed Leghorns	White Leghorn	27	29.65	Texas
Booth Farms & Hatchery	White Leghorn	30	29.40	Oklahoma

Twenty High White Leghorn Pens to Nov. 1—(31 Days)

Owner	Eggs	Points	Test
Kauder's Pedigreed Leghorns	336	342.95	Pennsylvania
Harward Woodward	341	339.30	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	332	337.20	Georgia
Crescent Farms	321	336.50	Florida
Rapp's Poultry Farm	336	331.25	Hunterdon, N. J.
Kauder's Pedigreed Leghorns	335	328.80	Storrs
Rapp's Poultry Farm	327	327.75	Hunterdon, N. J.
Gold Spot Hatchery	326	326.65	Arizona
Rapp's Poultry Farm	327	325.85	Passaic, N. J.
W. E. Pyles and Son	338	325.80	Georgia
Kauder's Pedigreed Leghorns	322	321.95	Pennsylvania
Babcock's Hatchery	350	320.45	Pennsylvania
J. A. Hanson	328	319.05	Georgia
Bryan J. Snell	322	317.70	Pennsylvania
George Vowell	330	316.65	Arizona
George M. Heberer	337	317.60	Arizona
Bodine's Pedigreed Leghorns	332	317.60	Central New York
Foreman Poultry Farm	350	315.25	Maine
Kauder's Pedigreed Leghorns	313	314.85	Storrs
W. A. Seidel	333	313.55	Texas

Twenty High Rhode Island Red Pens to Nov. 1—(31 Days)

Owner	Eggs	Points	Test
J. J. Warren	366	358.70	Storrs
J. J. Warren	354	343.20	Long Island
W. H. Wilson	332	335.50	Georgia
E. B. Parmenter	328	335.35	Storrs
Harco Orchards	328	335.30	Storrs
Peckham Farm	344	334.90	Rhode Island
J. J. Warren	360	334.75	Storrs
H. J. Hardin	330	334.55	Georgia
E. B. Parmenter	327	332.70	Rhode Island
E. B. Parmenter	348	331.25	Passaic, N. J.
J. J. Warren	341	329.70	Georgia
E. B. Parmenter	341	328.90	Storrs
D. I. Goodenough	323	328.90	Storrs
H. J. Hardin	350	328.80	Georgia
J. J. Warren	338	326.55	Pennsylvania
J. J. Warren	330	326.10	California
Ralph W. Anderson	314	325.50	Rhode Island
W. H. Wilson	346	325.30	Georgia
J. J. Warren	324	325.25	Maine
J. J. Warren	331	324.10	Western New York

Twenty High New Hampshire Pens to Nov. 1—(31 Days)

Owner	Eggs	Points	Test
George A. Pearce	336	329.65	Passaic, N. J.
C. D. Cummings	351	321.20	Georgia
Hubbard Farms	337	320.75	Storrs
George A. Pearce	323	315.15	Hunterdon, N. J.
James H. Horne	316	306.95	Storrs
George A. Pearce	311	300.20	Storrs
Crescent Farms	304	298.70	Florida
Nedlar Farm	314	298.55	Georgia
Joachim Breeding Farm	301	293.80	Storrs
H. S. & M. E. Twichell	306	289.95	Storrs
Pine Mountain Valley Farms	305	287.80	Georgia
James H. Horne	297	281.40	Pennsylvania
Pine Top Poultry Farms	309	279.25	Georgia
Harward Breeding Farm	286	278.40	California
Hubbard Farms	299	276.65	Western New York
Pine Top Poultry Farms	276	273.95	Rhode Island
Pine Top Poultry Farms	301	273.85	Storrs
Thos. J. Harrold	294	273.85	Georgia
Hubbard Farms	269	268.60	Rhode Island
Ebenwood Farm	263	261.05	Rhode Island

Twenty High Barred Plymouth Rock Pens to Nov. 1—(31 Days)

Owner	Eggs	Points	Test
Dryden Poultry Breeding Farm	334	318.05	Storrs
Dryden Poultry Breeding Farm	333	310.85	Storrs
R. C. Cobb	317	305.00	Storrs
J. W. Schaible	346	304.95	Hunterdon, N. J.
Rockhockson Farm	293	281.35	Hunterdon, N. J.
Fisher Orchards	274	278.30	Pennsylvania
Dryden Poultry Breeding Farm	300	274.20	California
Harco Orchards	308	273.50	Maine
Harco Orchards	285	272.25	Rhode Island
Pine Top Poultry Farms	269	270.65	Rhode Island
David T. Cohen	270	258.35	Pennsylvania
A. J. Urquhart	295	258.05	Maine
Mel Wilson	262	256.90	Maine
Foster Jameson	250	250.50	Maine
Fisher Orchards	261	245.40	Michigan
Harco Orchards	249	244.35	Storrs
David T. Cohen	242	233.00	Georgia
A. J. Urquhart	263	232.10	Passaic, N. J.
Arbor Acres Farm	250	231.90	Storrs
Fellows Bros.	242	229.20	Storrs

Twenty High White Plymouth Rock Pens to Nov. 1—(31 Days)

Owner	Eggs	Points	Test
Riley Poultry Farm	288	262.60	Storrs
John Spangenberg	288	258.75	Maine
Carter-Dunham	267	257.45	Pennsylvania
A. C. Lawton	281	254.45	Rhode Island
Carter-Dunham	273	252.45	Storrs
Four Winds Farm	263	251.70	Michigan
Holtzapple Poultry Farm	263	239.90	Georgia
Missouri Valley Hatchery	250	231.70	Georgia
Carter-Dunham	232	230.50	Georgia
Knepley Hatchery	234	220.95	Oklahoma
Riley Poultry Farm	237	215.95	Michigan
Bagby Poultry Farm	234	214.20	Maine
John Spangenberg	249	211.85	Storrs
Imperial Breeding Farm	243	210.70	Storrs
Townsley Trapnest Farm	218	204.80	Georgia
Kerr Chickeries	220	203.30	Maine
A. C. Lawton	215	202.65	Storrs
Ralph DeYoung	212	202.60	Maine
Carter-Dunham	204	200.10	Georgia
Frank L. Douglas	228	198.00	Storrs

Average Production and Mortality, Each Test, to Nov. 1—(31 Days)

Test	No. Birds in Test	Eggs Per Bird to Date	Points Per Bird to Date	Egg Wt. in Ounces Per Doz.	Per Cent Mortality for Oct.	Per Cent Mortality to Date.
Arizona	390	19.50	19.01	23.48	0.00	0.00
Georgia	1326	20.39	18.75	22.38	0.38	0.38
Storrs	1352	19.52	18.26	22.70	0.30	0.30
Hunterdon, N. J.	624	19.33	18.12	22.74	0.81	0.81
Rhode Island	611	18.64	17.88	23.18	1.00	1.00
California	624	18.72	17.09	22.24	0.65	0.65
Pennsylvania	1105	18.13	16.85	22.80	0.00	0.00
Florida	1118	16.62	15.18	22.14	0.90	0.90
Passaic, N. J.	871	15.99	14.95	22.68	0.12	0.12
Texas	1456	15.95	14.66	22.38	0.00	0.00
Michigan	871	16.02	14.32	21.86	0.81	0.81
Western New York	975	13.65	13.60	23.92	0.00	0.00
Long Island	1092	14.59	13.21	22.10	0.83	0.83
Maine	988	14.16	13.07	22.40	0.21	0.21
Central New York	1066	13.87	12.88	22.56	0.00	0.00
Oklahoma	650	13.86	12.53	22.08	0.31	0.31
All Tests	15,119	16.80	15.64	22.60	.39	.39

The Wages of Crowding are Trouble

This last week I've been driving through Missouri, Kansas, Iowa, and Minnesota. I've never seen so many chickens. Farmyards were white with them.

I began to wonder where people were putting them. I stopped at several places where the houses were practically bulging. At one place they had a good house—20 by 40—big enough for 200 birds. But they had 350 in it! The litter was damp and they were a little concerned because the birds seemed to have colds. They were losing a few right along and the birds weren't coming into production as well as they expected. Some of those that were laying had to lay on the damp, dirty litter, because there weren't enough nests — only about 25, when there should have been 70 for that many hens!

Those folks are going to be disappointed in their chickens this winter, and it's a shame, because you could tell they had put some fine pullets into the house. They won't understand why they lose so many and why they don't get more eggs. Next year they'll probably switch to another breed.

They've got good chickens and they've got a good house. They just have too many birds in it. That's all. And a crowded house means **TROUBLE**: sickness, death losses, and poor production.

—Frank Priebe's Weekly Letter for Oct. 30, 1941.

BABY chicks consume more cod liver oil than human infants.
—Journal of the American Veterinary Medical Association (Vol. 99, No. 776).

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If An Egg Could Talk

If an egg could talk it might say:

I am an egg.

I am the embodiment of life and health.

I am nature's original package of vim, vigor, and vitality.

I am a perfect little mine of marvelous minerals.

I am the nearest approach to a balanced diet in the original package.

I am boiled, fried, poached, scrambled, shirred, and omeletted.

I am the inevitable partner of fried ham, and inseparable companion of his brother, bacon.

I am the blessing of breakfast; the leaven of luncheon; and the distinction of dinner.

I am the circulating agency of the country; the floating finance of the farmer; the answer to the ailments of the agriculturist.

—American Poultry Journal, December, 1941, by permission of Dept. of Agr., Ottawa, Canada.

SKILLED chick sexers have received a postponement of calling up (conscription) until January, 1942.

The respite has been solely allowed so that they may have time to train others.

—Feathered World, London, England, Sept. 19, 1941.

End of Volume